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NPIC/R-1065/64

January 1964

[redacted]

PHOTOGRAPHIC INTERPRETATION REPORT

SHUANG-CHENG-TZU MISSILE TEST CENTER, CHINA

DECLASS REVIEW BY NIMA / DoD

CIA

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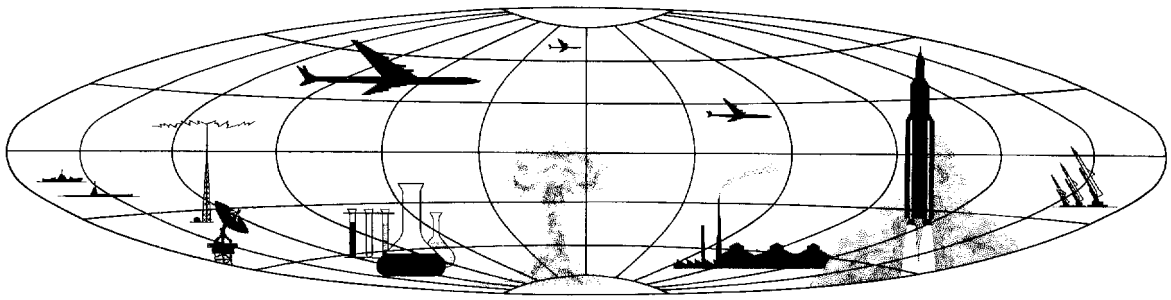
NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER



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WARNING

This document contains information affecting the national defense of the United States, within the meaning of Title 18, sections 793 and 794, of the U.S. Code, as amended. Its transmission or revelation of its contents to or receipt by an unauthorized person is prohibited by law.

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PHOTOGRAPHIC INTERPRETATION REPORT

SHUANG-CHENG-TZU MISSILE TEST CENTER, CHINA

NPIC/R-1065/64
January 1964

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

PREFACE

This report, prepared in response to CIA requirements OSI/R-10/62, OSI/R-108/62, OSI/R-142/62 and DDI/RR/E/R-04/62, and NSA requirement NSA/A053/R-12/62, presents a detailed photographic analysis of the Shuang-cheng-tzu Missile Test Center in China.

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Photography of [redacted] was utilized in preparing this report. [redacted] was utilized as the primary source of measurements since the scale, and sun and camera angles were most favorable. Geographic coordinates, azimuths, and gross measurements should be referred to with caution because of the lack of reliable map data. The extreme obliquity of the photography from [redacted] permitted derivation of only limited positive information and, in most cases, precluded comparison of activity with that seen on [redacted]

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SUMMARY

The Shuang-cheng-tzu Missile Test Center (SCTMTC) in Communist China (Figure 1) includes ballistic and cruise surface-to-surface missile (SSM) launch facilities, surface-to-air missile (SAM) launch facilities, missile operational support and storage facilities, general rangehead support facilities, and a large airfield with air-to-surface missile (ASM) and probably air-to-air missile (AAM) facilities.

The SSM launch facilities comprise three launch complexes with five launch sites. The three launch complexes have three completed launch pads and two incomplete, abandoned pads. The SAM facilities include two fan-shaped SA-2 launch sites. There is also a deployed SA-2 SAM site in the center of the rangehead area.

The layout of facilities at SCTMTC generally resembles that of the Kapustin Yar/Vladimirovka Missile Test Center (KY/Vlad MTC) as it appeared on photography of [redacted] and shows obvious Soviet influence in the formulation of plans.

No determination can be made as to present Soviet involvement in the missile program at SCTMTC. There is some evidence of missile activity, but no determination can be made as to whether or not it is a native (Chinese) R & D program, although the facilities are capable of supporting such an effort. It can be seen that personnel are present at SCTMTC and that construction activity on facilities continued between [redacted]

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INTRODUCTION

This photographic interpretation report presents a study of the SCTMTC (Figure 1), the only major Chinese Communist missile test center identified to date. The center is located in northwestern China in Ning-hsia Sheng (Ningsia Province) at approximately 41-05N 100-15E, along the O-chi-na Ho (River) Basin in the Gobi Desert. Although the environment is basically desert, the temperature of the area ranges from -20°F to +100°F. The terrain is basically flat, with rugged hill masses to the west and several ridges on the eastern side of the river basin.

The center stretches along the O-chi-na Ho for approximately 70 nautical miles (nm). The layout of the facilities at the SCTMTC generally resembles that at the Kapustin Yar/Vladimirovka Missile Test Center (KY/Vlad MTC) as it appeared on photography of [redacted]

Rail and air service provide primary access to the SCTMTC. There are no roads connecting the area of the SCTMTC to the rest of China, although the center lies along an ancient caravan route. Rail service is provided by a single branch from the Lan-chou/Wu-lu-mu-chi (Urumchi) rail line. Air-service facilities are provided by the Shuang-cheng-tzu Airfield. Continuing activity as well as new construction in several areas of the center shows that it was an active installation between [redacted]

The SSM launch facilities, located in the northern part of the missile test center, comprise three road-served R & D type launch complexes oriented to the west, with a total

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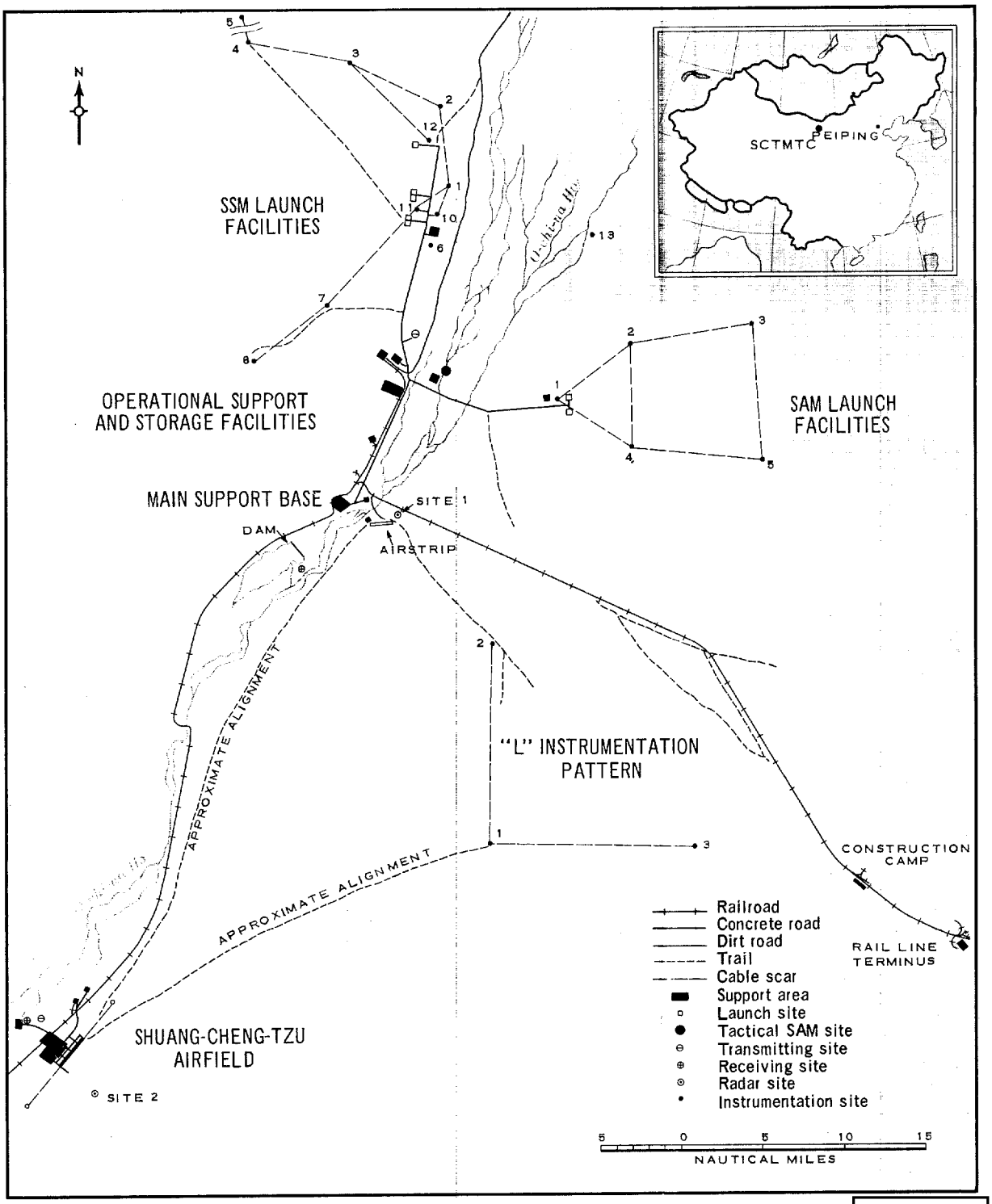

FIGURE 1. SHUANG-CHENG-TZU MISSILE TEST CENTER, CHINA.

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of five launch sites (four ballistic and one cruise), their associated instrumentation, and a housing and support area. The three launch complexes, labeled A, B, and C, have three completed launch pads and 2 incomplete, abandoned pads. Completed SSM launch complexes A and C have associated final checkout areas, and all three complexes would be served by the SSM Assembly and Checkout area. Room for expansion is almost unlimited to the north of SSM Launch Complex C.

The SAM launch facilities, located in the central part of SCTMTC and oriented to the east, include an R & D launch area with two fan-shaped SA-2 launch sites (labeled A and B), an associated instrumentation network and a housing and support area. These facilities are served by the SAM Assembly and Checkout Area. There is also a deployed SA-2 SAM site located in the center of the rangehead area.

Operational Support and Storage facilities for the SCTMTC are all located just west of the main access road to the SSM launch complexes. They consist of an SSM-SAM assembly and checkout complex, two revetted storage areas, one with a large handling building, and a possible propellant handling and storage area.

General rangehead support facilities include a Main Support Base, two rangehead communication sites, a thermal-electric power plant, railroad facilities, an early warning radar site and Meteorological Station, and a railroad line extending into the desert approximately 50 nm southeast of the Main Support Base.

The large airfield approximately 40 nm south-southwest of the Main Support Base contains facilities for ASM and probable AAM operations as well as such airfield support facilities as a housing area, POL storage areas, an M-type storage area and two communications sites. Also associated with the airfield is an L instrumentation pattern and an early warning radar site.

SURFACE-TO-SURFACE MISSILE LAUNCH FACILITIES

The Surface-to-Surface Missile (SSM) Launch Facilities (Figures 2 through 17) consist of three road-served SSM launch complexes, SSM rangehead instrumentation, and an SSM housing and support area. Although there is room in the area to the north for almost unlimited expansion of the launch facilities, there apparently were no new launch facilities constructed between [redacted] 25X1D
[redacted] 25X1D

The SSM launch complexes are designated A, B, and C from south to north.

The direction of fire from the SSM launch complexes is to the west, on an azimuth of approximately 270 degrees. The maximum firing range within the limits of China is approximately 1,100 nm, and is primarily across and into desert regions. If a 1,100 nm terminal range facility exists, it would be in the western extremity of the Takla Makan (desert).

SSM LAUNCH COMPLEX A

SSM Launch Complex A (Figure 3) consists of a launch area with two nearly identical road-served research and development (R & D) type launch sites and support facilities consisting of a missile checkout area and a service

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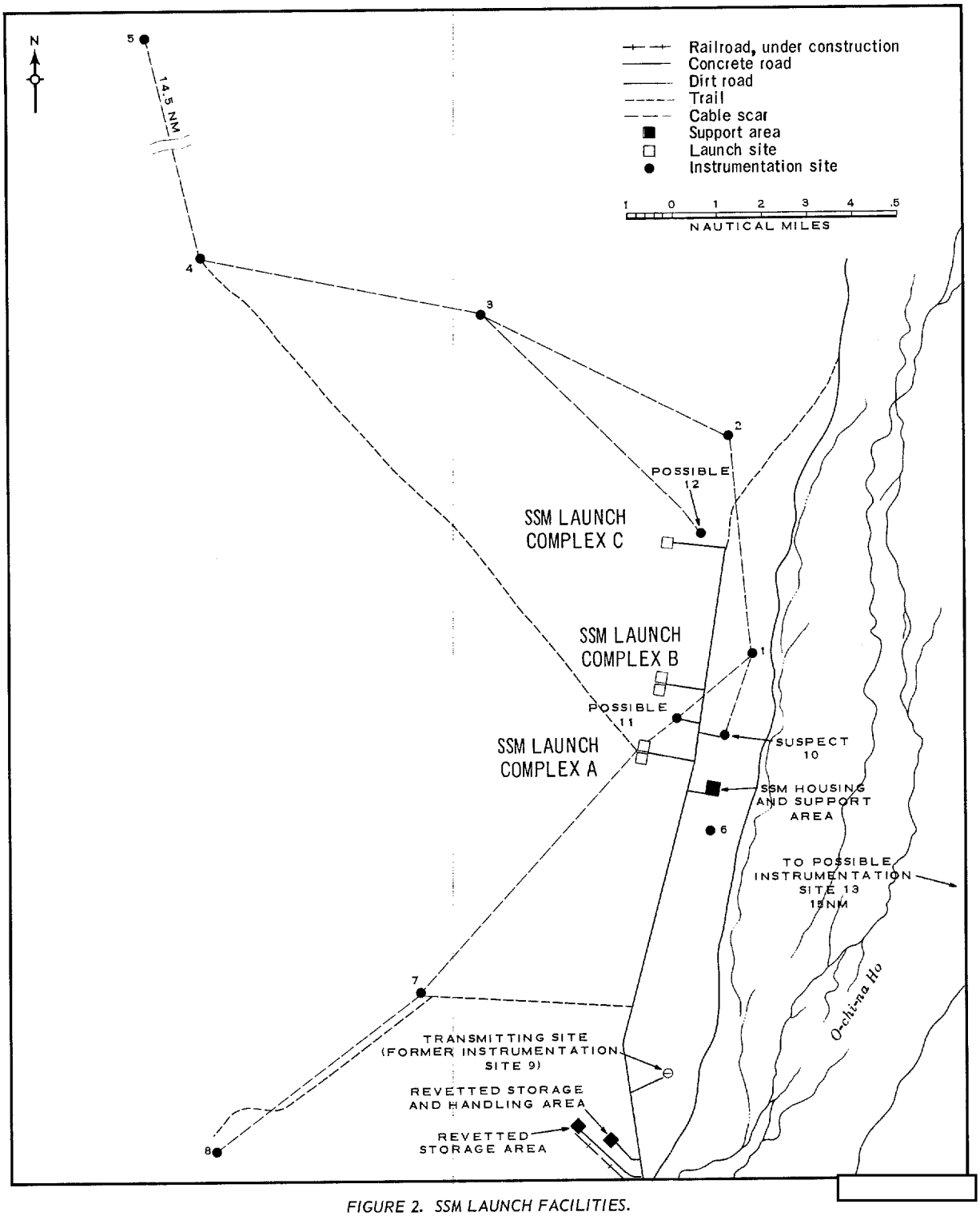

FIGURE 2. SSM LAUNCH FACILITIES.

25X1

area. The complex is approximately 3 nm by road from the SSM Housing and Support Area and approximately 11 nm north of the SSM Assembly and Checkout Area (Figure 1).

SSM Launch Complex A is complete, and the southern launch site (A1) probably has been utilized for live firing, as indicated by the blackening on the pad. On [redacted] photography an 80-foot-diameter crater was located 2,165 feet north of Launch Site A1. This crater, which was not present on photography of [redacted] probably was the result of an abortive missile firing. In addition, three pieces of missile-handling equipment (mobile platforms) were moved from one corner of the pad at this site to other positions on the pad between [redacted]

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The launch complex and its associated instrumentation pattern is oriented on an azimuth of approximately 270 degrees. The [redacted] photography disclosed extensive trackage downrange for approximately 4 nm from the launch area, but no function can yet be ascribed to this activity.

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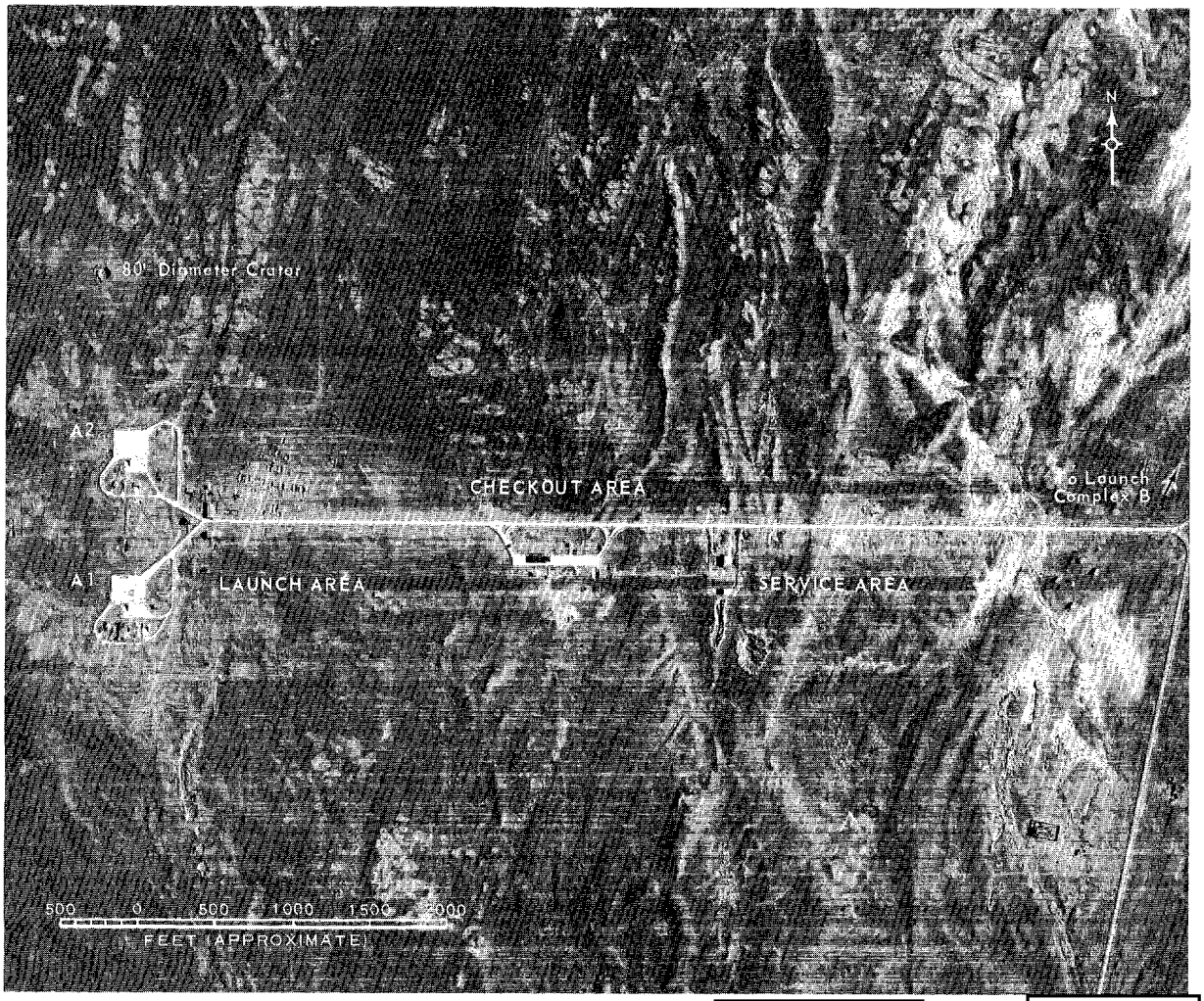

FIGURE 3. SSM LAUNCH COMPLEX A, [redacted] 25X1

25X1D

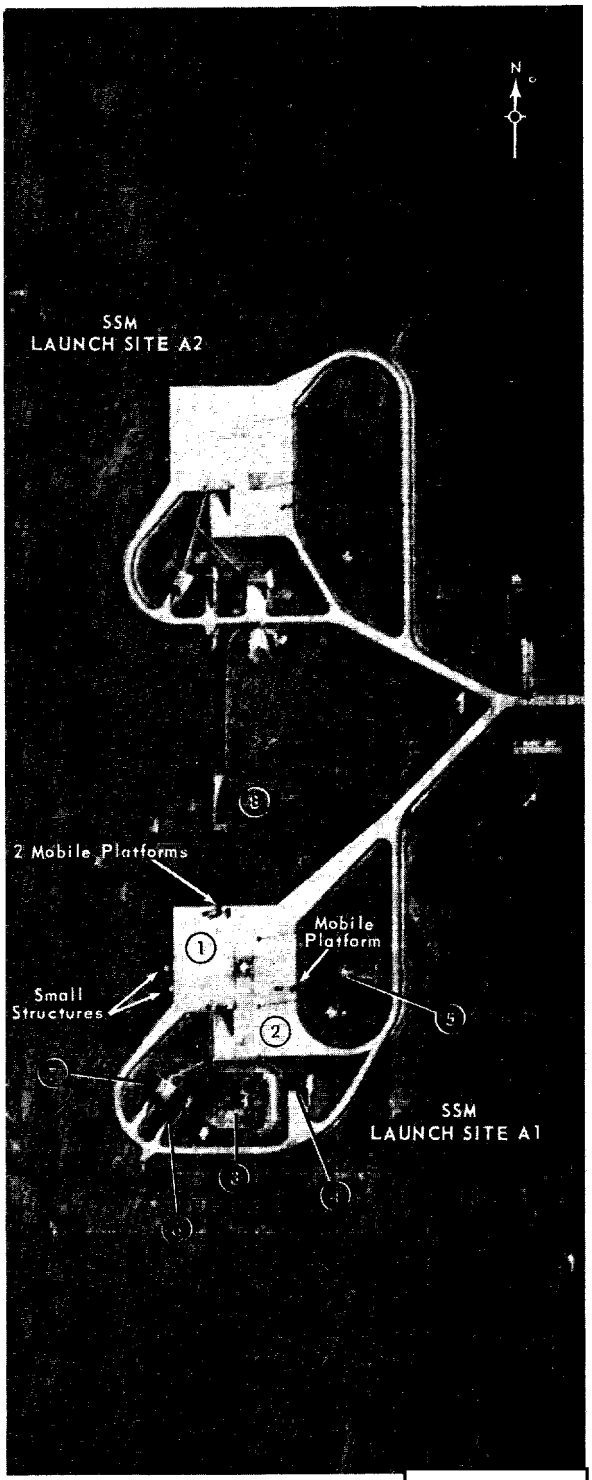

FIGURE 4. SSM LAUNCH AREA A

SSM Launch Area A

The secured launch area (Figures 4 and 6) contains two launch sites which have been designated Launch Site A1 and Launch Site A2, from south to north. The two sites are separated by a distance of approximately 985 feet (300 meters) on center. The major difference between the two sites is that Launch Site A1 has a massive control bunker (item 3) and two more vehicle/equipment revetments (items 5 and 8) than Launch Site A2.

The early-to-midstage of construction at SSM Launch Complex B helped in determining construction techniques for most of the items present at both launch sites at Complex A, since the configurations of the launch sites of both complexes appear to be identical.

The launch areas of both Complex A and Complex B, in particular Launch Site A1, closely resemble Launch Area 1C of Launch Complex C at the KY/Vlad MTC. This can be seen from the following comparison of the facilities at the two launch areas. The item numbers are keyed to Figures 4 and 6, SCTMTC, and to Figures 5 and 7, the KY/Vlad MTC.

Pad (Item 1)

At SCTMTC the pad measures 225 by 200 feet and is divided in approximately 35 foot squares. On [redacted] photography, there are blast marks at the center of the pad and an unburned area where a square blast deflector/launch pedestal had been located. Both on [redacted] photography there were three mobile servicing platforms approximately 15 feet high; light towers, approximately 45 feet high, were near each corner of the pad; and two small structures were just off the west side of the pad. Five small unidentified ob-

jects could also be observed on the south side of the pad on [redacted] photography.

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At KY/Vlad MTC the pad measures 185 by 185 feet. On [redacted] photography, a launch pedestal was positioned on the center of the pad. On [redacted] photography, a mobile lattice launcher/erector approximately [redacted] was near the center of the pad and a possible cherry-picker-type crane was just off the southeast corner.

25X1D

25X1D

25X1D

Apron (Item 2)

At SCTMTC the apron is a 90-foot extension of the pad toward the control bunker. The apron contains a revetment 35 feet wide with a ramp 50 feet long which probably extends under the pad approximately 25 to 30 feet.

At KY/Vlad MTC the apron is a 100-foot concrete extension of the pad toward the control bunker. The apron contains a revetment with a 50-foot ramp which appears to extend under the pad.

Control Bunker (Item 3)

At SCTMTC the control bunker is earth mounded and measures 125 by 100 feet. There is a rectangular object near the center of the control bunker with two probable periscope-type objects on top. The entrance is on the southwest corner and a possible ventilator is at each of the three other corners.

At KY/Vlad MTC the control bunker is earth mounded and measures 130 by 100 feet. There are two probable periscope-type objects near the center of the top of the bunker. The entrance is on the northeast corner and a possible ventilator is at each of the other three

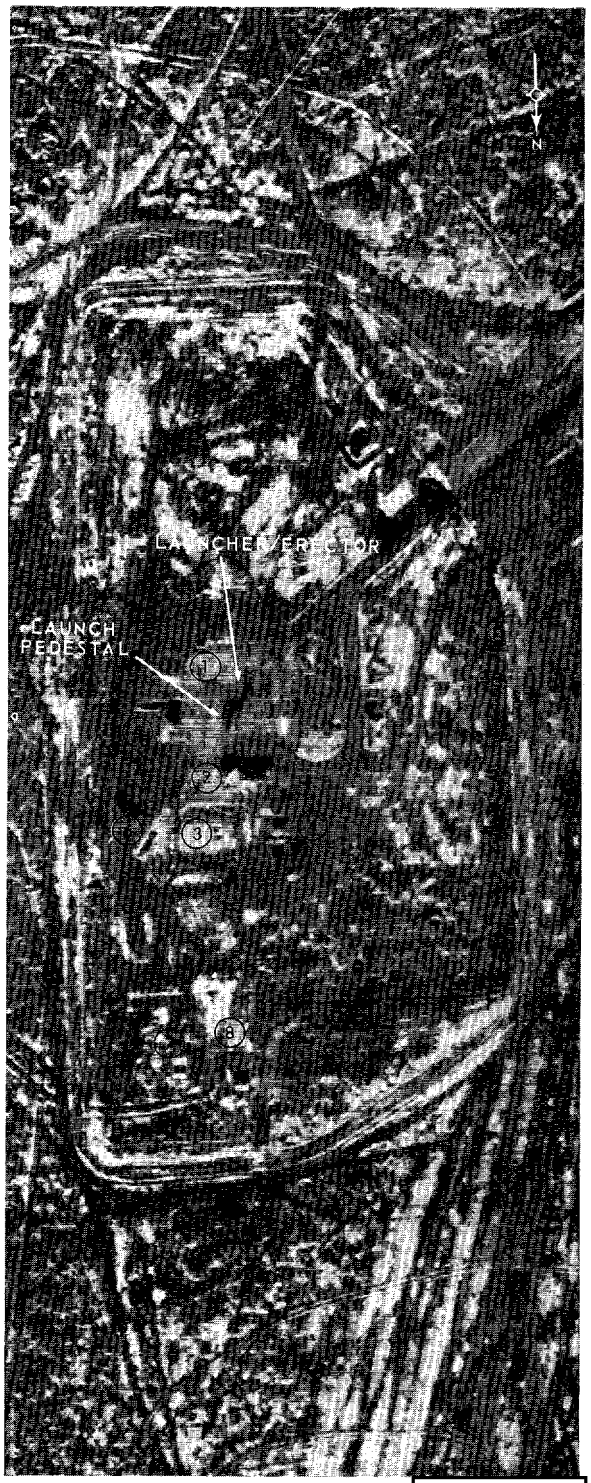

FIGURE 5. LAUNCH AREA 1C, KY/VLAD MTC, USSR [redacted]

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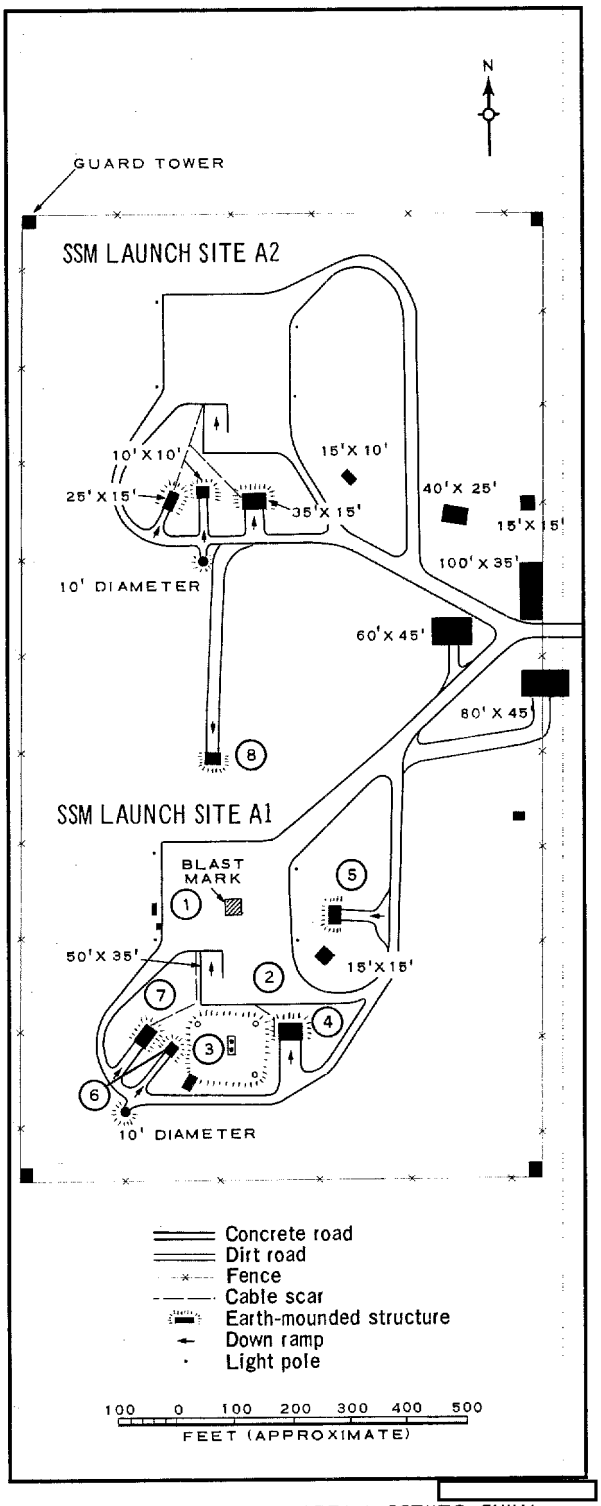

FIGURE 6. SSM LAUNCH AREA A, SCTMTC, CHINA.

corners. However, on the [redacted] photography, these ventilators were not visible. 25X1D

Vehicle/Equipment Bunker (Item 4)

At SCTMTC the covered portion of this bunker measures 35 by 15 feet with a ramp oriented toward the launch pad.

At KY/Vlad MTC the covered portion of this bunker measures 35 by 25 feet with a ramp 30 feet long oriented downrange.

Vehicle/Equipment Bunker (Item 5)

At SCTMTC the covered portion of this bunker measures 20 by 15 feet with a ramp 50 feet long aligned with the center of the pad.

At KY/Vlad MTC this item is a revetment which, including the ramp, measures 50 feet long and 15 feet wide. It is aligned with the center of the pad. A buried tank with a top diameter of 25 feet is adjacent to this revetment.

Vehicle/Equipment Bunker (Item 6)

At SCTMTC the covered portion of this bunker measures 10 by 10 feet with a ramp 60 feet long.

At KY/Vlad MTC this item is a revetment which measures overall 50 feet in length and 20 feet in width. It is oriented toward the center of the pad and contained a 20 foot-long van in [redacted] 25X1D

Vehicle/Equipment Bunker (Item 7)

At SCTMTC the covered portion of this bunker measures 25 by 15 feet with a ramp 40 feet long, oriented toward the center of the pad.

At KY/Vlad MTC the covered portion of this bunker measures 20 by 15 feet. Although this bunker is located approximately 600 feet from the center of the pad, it is the probable counterpart of the bunker at SCTMTC designated Item 7.

Vehicle/Equipment Bunker (Item 8)

At SCTMTC the covered portion of this bunker measures 20 by 15 feet with a ramp 85 feet long and 20 feet wide. This bunker is located approximately 270 feet north of the center of the pad.

At KY/Vlad MTC the covered portion of this bunker measures 35 by 30 feet. This bunker is located 550 feet north of the center of the pad.

The major differences between SSM Launch Site A1 at SCTMTC and Launch Area 1C at KY/Vlad MTC seem to be primarily in the support facilities and equipment, rather than in the launch sites. These differences are:

1. At KY/Vlad MTC Launch Area 1C, 25X1D between [redacted] a tank 25 feet in diameter was emplaced adjacent to the east side of the pad, shown near Item 5 on Figure 7. No comparable tank is known to be present at SCTMTC.

2. At SSM Launch Area 1C, KY/Vlad MTC a 50-by-20 feet semiburied building is located along the west side of the loop road. No comparable building is present at SSM Launch Site A1, SCTMTC, although it is possible that an 80-by-45 foot building straddling the fence-line fulfills the same function.

Placement of security, utility, and other support buildings is by choice and is rather insignificant.

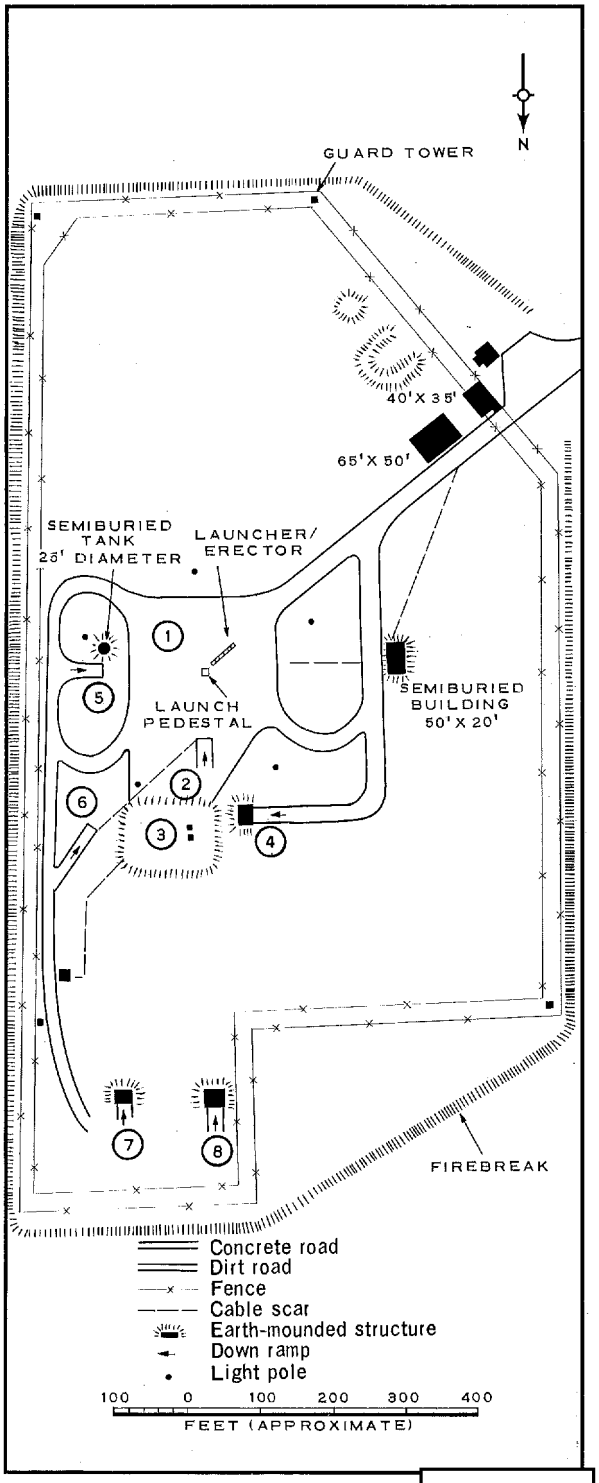

FIGURE 7. SSM LAUNCH AREA 1C, KY/VLAD MTC, USSR. [redacted] 25X1

Support Facilities

The support facilities (Figure 8) related solely to SSM Launch Complex A are located along the access road, approximately 0.5 nm east of the launch area, and include a checkout area and a service area.

Checkout Area

This Checkout Area at SCTMTC is very similar in layout to the checkout area at the KY/Vlad MTC Launch Area 1C (Figure 9). However, there are several differences in the components and equipment present at this and

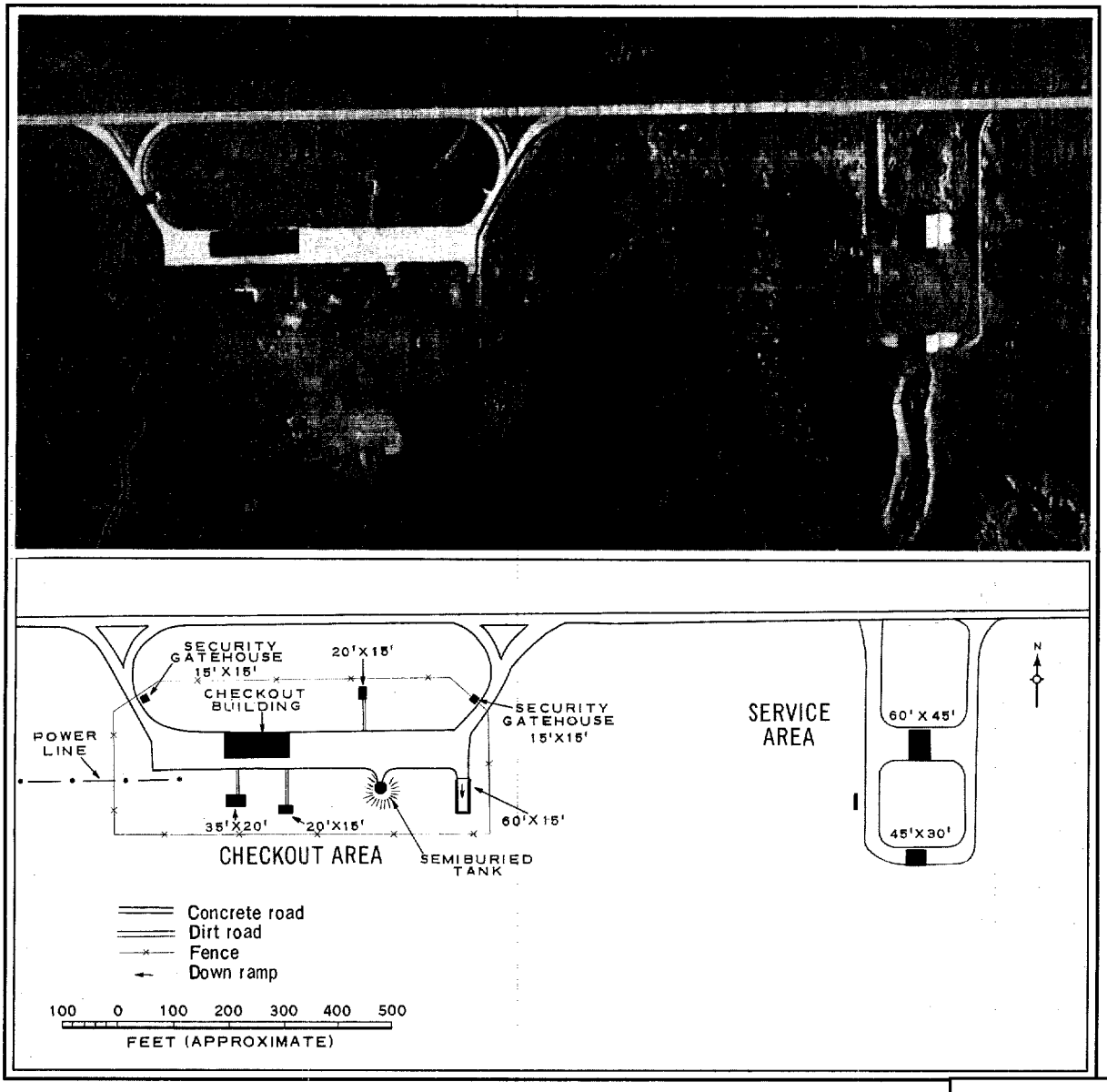

FIGURE 8. SUPPORT FACILITIES, SSM LAUNCH COMPLEX A

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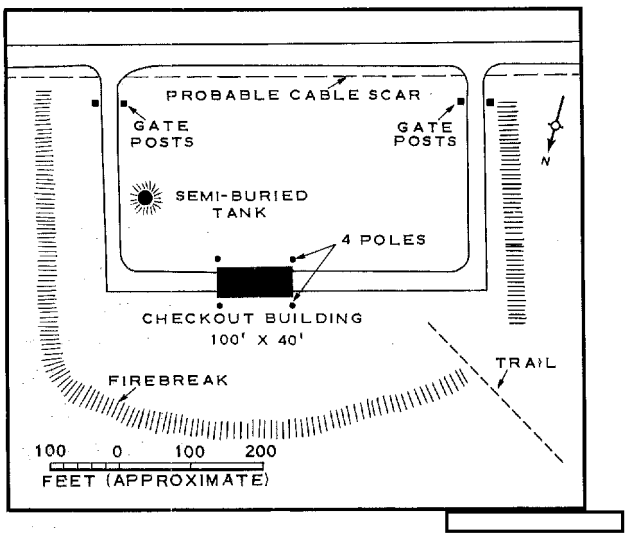

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FIGURE 9. CHECKOUT AREA, SSM LAUNCH AREA 1C, KY/VLAD MTC, USSR.

the KY/Vlad MTC checkout area. This area at SCTMTC is wire-fence secured with two security gatehouses; the KY/Vlad MTC area has only a pair of gate posts at each of the entrances to the loop road. The checkout building at SCTMTC has a total area of approximately 4,800 square feet; the area of the counterpart building at the KY/Vlad MTC is 4,000 square feet. The SSM Launch Complex A, SCTMTC, checkout building lacks the poles at the corners of the building that are present at the KY/Vlad MTC. These poles are probably supports for rails on which the end doors of the building slide to provide full-width openings. The hardstand at SSM Launch Complex A Checkout Area, SCTMTC, is wider than that at the KY/Vlad MTC and provides a by-pass along the south side of the checkout building which the hardstand at the KY/Vlad MTC does not. At least 30 vehicles or pieces of equipment were seen blocking the approaches to the KY/Vlad MTC checkout building on

25X1D

photography. Finally, there are four items present in the Checkout Area for Launch Complex A which are not present at the KY/Vlad MTC. However, similar items can be observed at the Checkout Area of Launch Complex C at SCTMTC. These items are an unoccupied vehicle revetment measuring 60 by 15 feet and three small buildings. A semiburied tank 10 to 15 feet in diameter is present in both SCTMTC and the KY/Vlad MTC checkout areas.

Service Area

The Service Area for SSM Launch Complex A is located approximately 550 feet east of the Checkout Area and contains two drive-through, gable-roofed buildings which measure 60 by 45 feet and 45 by 30 feet. The drive-through character of these two buildings is unusual in that they pass through perpendicular to the ridge line of the gable roofs. The area has a loop-road system, the surface of which is only graded and rolled earth, in contrast to the concrete surface of the other roads in the vicinity. This suggests that the amount of traffic is less or the load limits are lower than in the Checkout Area or the launch area. This area probably provides storage of equipment for missile servicing, or for fire-fighting and other emergencies. No activity in the Service Area could be seen on any of the photography.

No facility with a layout similar to that of this area has been observed elsewhere at SCTMTC or at the KY/Vlad MTC.

SSM LAUNCH COMPLEX B

SSM Launch Complex B (Figure 10) is approximately 1.5 nm north-northeast of SSM Launch Complex A. Launch Complex B consists of a launch area in an early-to-midstage of construction and a concrete-surfaced access road which terminates at the entrance to the launch area. This road is the only completed item in the complex. As there has been no

change in the facilities or activity in the area since [redacted] such as the presence of vehicles or construction equipment, it is felt that this complex has been abandoned.

SSM Launch Area B

The launch area, Figure 11, contains two launch sites 985 feet (300 meters) apart. They are designated SSM Launch Sites B1 and B2, from south to north. The orientation of the pads is on an azimuth of approximately 270 degrees as the pads are in the SSM Launch Complex A. The launch area was never secured although construction had been started on a perimeter fence. Preliminary grading of the loop-road system, construction of pads, and excavation for all subsurface facilities was nearly completed on [redacted] photography and it appeared that this complex would have been identical or very similar to SSM Launch Complex A when completed.

Just downrange from SSM Launch Area B is an area of abandoned construction personnel housing in which all of the buildings had been razed by [redacted] This is a square area, measuring approximately 200 feet on a side, formed by the footings of ten former buildings. The foundation of an eleventh building and a small rectangular excavation are nearby.

The incomplete stage of construction has answered many questions with regard to the completed facilities at both SSM Launch Complex A, and Launch Area 1C, KY/Vlad MTC. Although the dimensions of many of the incomplete facilities at SSM Launch Complex B are not the same as those of their counterparts at SSM Launch Complex A, it is estimated that they would be the same if the facilities were completed and the backfilling finished.

The facilities in SSM Launch Complex B are described below and where possible, compared to those in SSM Launch Complex A. The item numbers are keyed to Figure 11 and correspond to the numbers of similar items in Figures 4, 5, 6, and 7.

Pad (Item 1)

The pad dimensions are unconfirmed as the earth grading is incomplete. At the center of each of the pads in Launch Area B is a

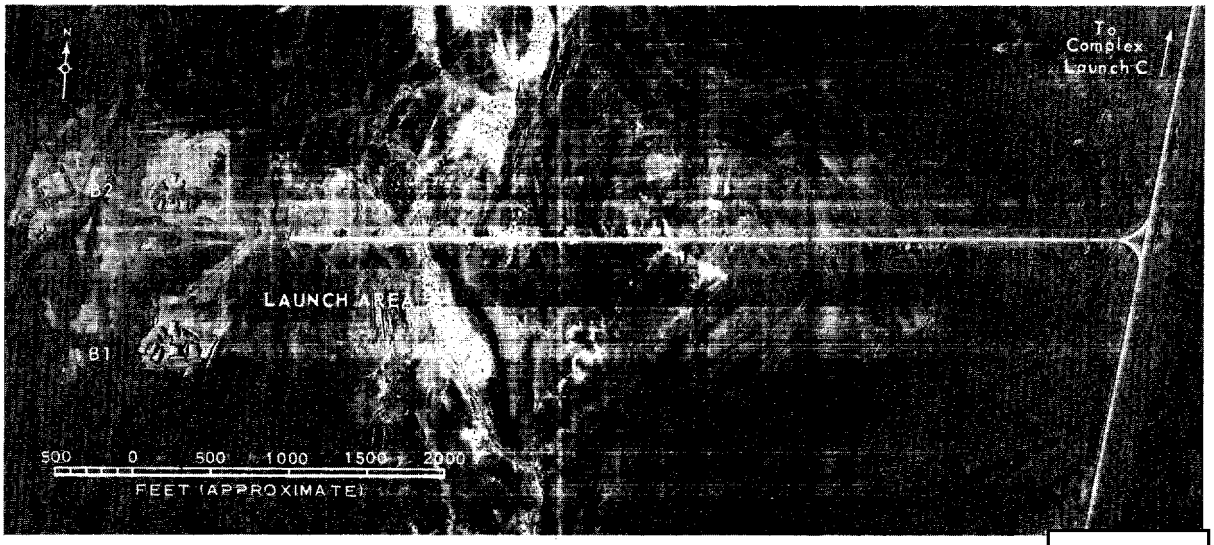

FIGURE 10. SSM LAUNCH COMPLEX B [redacted]

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FIGURE 11. SSM LAUNCH AREA B

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small unidentified object which measures approximately [redacted] This object is at the same location as the blast marks observed at Launch Site A1, SSM Launch Complex A.

Apron (Item 2)

The apron probably would be the same size as the aprons at Complex A launch sites when the grading is completed. The apron contains a vehicle/equipment revetment 80 feet long and 45 feet wide. Excavation for the revetment extends into and under the pad area for a distance of approximately 25 to 35 feet.

Control Bunker (Item 3)

The rectangular portion of the control bunker measures 85 by 80 feet. The two small excavations appended to the east and west sides would account for the 125 by 100 feet overall dimensions of the control bunker at Launch Site A1. It appears that the entrance will be in the small excavation at the southwest corner. The three possible ventilators on the control bunker at Launch Site A1 correspond in the location to the three small excavations at the other corners of this bunker.

Vehicle/Equipment Bunker (Item 4)

The excavation for the bunker is 50 feet wide and 30 feet long. The grading for the ramp into this bunker appears to be incomplete.

Vehicle/Equipment Bunker (Item 5)

No counterpart for item 5 in Launch Site A1 was observed at this launch site.

Vehicle/Equipment Bunker (Item 6)

The excavation for this bunker is 80 feet long and 30 feet wide.

Vehicle/Equipment Bunker (Item 7)

The excavation for this bunker is 80 feet long and 35 feet wide.

Vehicle/Equipment Bunker (Item 8)

No counterpart for item 8 in Launch Site A1 was observed at this launch site.

SSM LAUNCH COMPLEX C

SSM Launch Complex C (Figures 12, 13, and 14), the northernmost SSM launch complex,

FIGURE 12. SSM LAUNCH COMPLEX C [redacted]

is approximately 5 nm north of Launch Complex A. This is a cruise-missile facility and has a configuration entirely different from that of SSM Launch Complexes A and B. Although no facility identical to this facility is known to exist in either China or the USSR, general similarities can be seen between this and known cruise-missile sites in China as well as Launch Complex B at KY/Vlad MTC. 2/

It appears that the launch area at Complex C is complete. SSM Launch Complex C is oriented on an azimuth of approximately 270 degrees as are SSM Complexes A and B. SSM Launch Complex C is built on terrain which slopes down slightly from east to west. The roads, buildings, bunkers, and pad are all built on fill to maintain an even gradient throughout. An unidentified ground scar, possibly a water line, parallels the access road on its north side.

SSM Launch Area C

SSM Launch Area C (Figure 13) is road served and enclosed by a single security fence measuring approximately 1,300 by 600 feet, with guard towers at the northeast and southwest corners. The secured area contains a launch pad, two buildings, two small structures, four bunkers, two earth mounded structures, and a possible mount for instrumentation/guidance equipment.

The facilities in SSM Launch Area C are described below and the item numbers of the facilities are keyed to Figure 13.

Pad (Item 1)

The pad is rectangular in shape and measures 130 by 80 feet. It is centered on a rectangular, compacted earthen fill measuring 200 by 150 feet and is offset from the centerline of the access road by 175 feet. Four anchor points are located near the front or western edge of the pad. Both the pad and the service roads are concrete surfaced. Four light poles approximately 45 feet high are adjacent to the pad.

Drive-in Control Bunker (Item 2)

The drive-in control bunker measures 30 by 15 feet and is unusual in its small size and in that it has a vehicular entrance ramp nearly at ground level.

Possible Mount (Item 3)

A possible mount for instrumentation or guidance equipment is on the pad side of the control bunker, item 2.

Small Structure (Item 4)

A small flat-roofed structure, 20 by 10 feet, is connected by a mounded conduit or walkway to the road serving the control bunker. This item appears to be identical to item 7 described below.

Earth-Mounded Structure (Item 5)

A small earth-mounded structure, approximately 15 by 15 feet, is served by the concrete road in the pad area. This structure has a small unidentified object on top and appears to be identical to item 10 in this launch area.

Drive-in Bunker (Item 6)

A drive-in bunker, 30 by 20 feet, with an entrance ramp which leads down from ground level, is located on the north side of the access road to the launch area.

Small Structure (Item 7)

A small flat-roofed structure, 20 by 10 feet, same as item 4, is connected by a mounded conduit or walkway to the road serving the Launch Pad.

Drive-in Bunker (Item 8)

A drive-in bunker, 30 by 20 feet, with an

entrance ramp which leads down from ground level, is located on the north side of the access road.

Drive-in Bunker (Item 9)

This drive-in bunker, 45 by 25 feet, has a ground level entrance road.

Earth-mounded structure (Item 10)

A small earth-mounded structure, approximately 15 by 15 feet, same as item 5, has a small unidentified object on top.

Hip-roofed Building (Item 11)

A hip-roofed building, 60 by 40 feet, is a

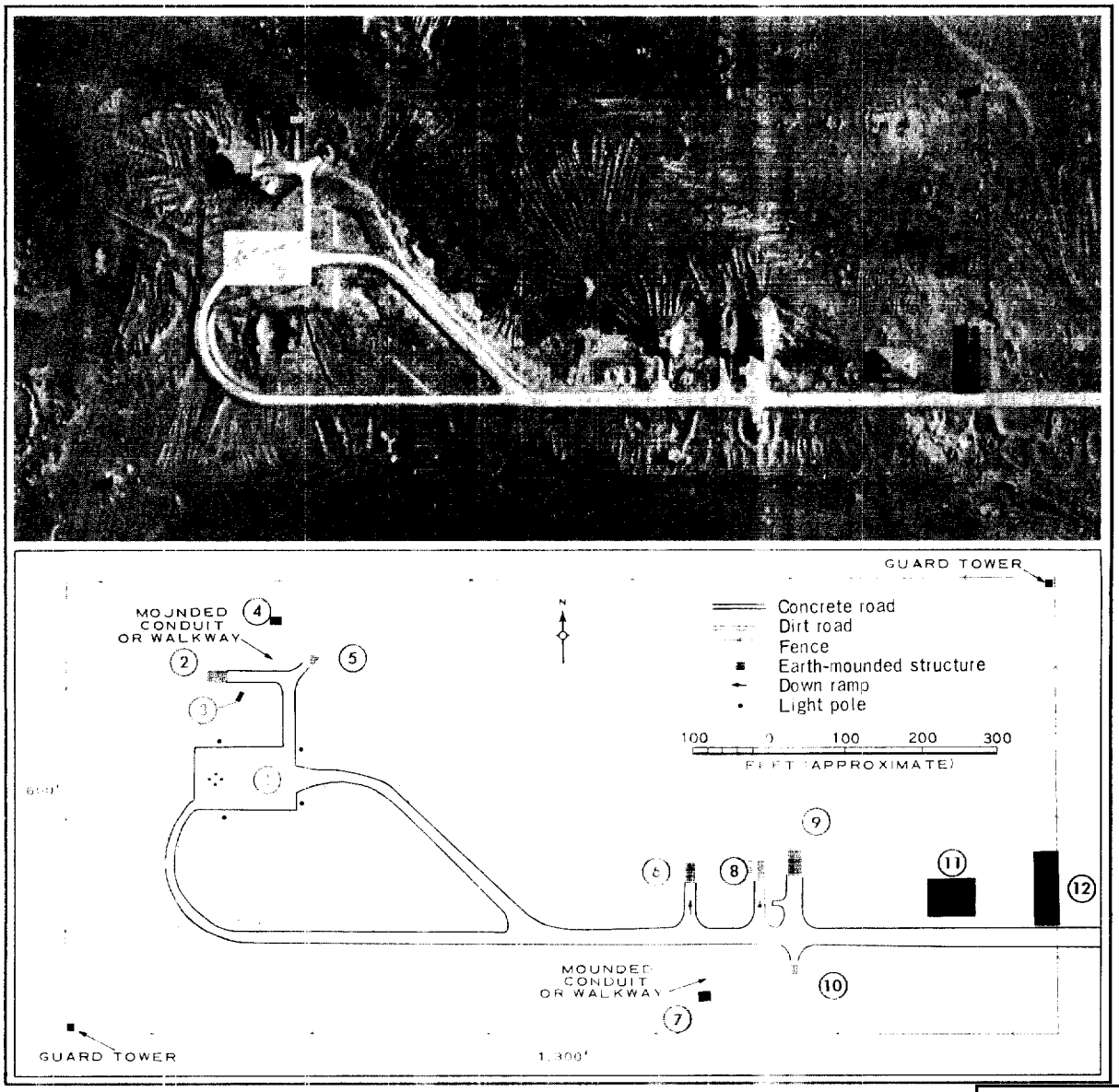

FIGURE 13. SSM LAUNCH AREA C [redacted] 25X1

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probable personnel building.

Gable-roofed Building (Item 12)

A gable-roofed building, 100 by 35 feet, is located on the fenceline.

Indicators which support the identification of SSM Launch Complex C as a cruise-missile facility include the following: The four anchor points near the front of the pad (item 1) correspond to those observed at the Lu-shun (Port Arthur) Cruise-Missile Site on 25X1D [redacted] The positioning of these 25X1D [redacted] anchor points near the front of the pad suggests a low-angle launch in that the exhaust flame would thereby be contained on the rectangular pad and also permit rear loading of the launcher as has been seen at other cruise-missile sites. The forward light poles are not located in front of the pad as at SSM Launch Sites A1 and A2, but rather are positioned at the sides of the pad and slightly to the rear of the anchor points. Finally, the drive-through building in the checkout area, which is Item 1 of Figure 14 described below, is a duplicate of the one in a checkout area off the road to the launch sites at the Lien-shan 25X1D Cruise-Missile Complex, as seen on [redacted] 25X1D [redacted]

Checkout Area

The Checkout Area (Figure 14) is approximately 2,500 feet to the rear (east) of the launch pad. This fenced checkout area also suggests Soviet influence. It is quite similar to the checkout area at SSM Launch Complex A at SCTMTC. Both areas contain a checkout building, a vehicle revetment, a semiburied tank, and a small building. A 70-foot-wide hardstand, which provides a bypass of the checkout building, and a security gatehouse at both approaches to the area further strengthen the similarity to Launch Complex A.

The facilities in the Launch Complex C Checkout Area are described below and the item numbers of the facilities are keyed to Figure 14.

Checkout Building (Item 1)

A gable-roofed checkout building, 60 by 30 feet, is identical to the one at Lien-shan, mentioned above.

Vehicle Revetment (Item 2)

This is a drive-in vehicle revetment which measures 60 by 15 feet.

Probable Semiburied Tank (Item 3)

A probable semiburied tank, with a top diameter of 25 feet, is located on the south side of the hardstand, opposite item 1.

Flat-roofed Building (Item 4)

This flat-roofed building, 20 by 10 feet, is connected to the hardstand by a mounded conduit or walkway.

Unidentified Structure (Item 5)

This unidentified structure is approximately 10 feet long and 10 feet wide.

SSM INSTRUMENTATION

The SSM Instrumentation at the rangehead consists of eight sites, numbered one through eight, and arranged in a Vee pattern (Figure 15) opening downrange to the west, and three possible instrumentation sites, which are all located behind the launch complexes and numbered 11, 12, and 13. There is also a suspect instrumentation site, numbered 10, which is located behind and centered between Launch Complexes A and B.

Sites 1 through 8 can be divided into two general types, those containing an observation tower with a pedestal on top for the mounting of probable optical equipment, or those containing a standard 20-foot diameter range-in-

strumentation dome mounted on one end of a small gable-roofed building. The control center, Site 1, is located behind the launch complexes and has both the tower and the dome. The Vee sites can generally be paired by types of facilities and position, although terrain seems to prevent

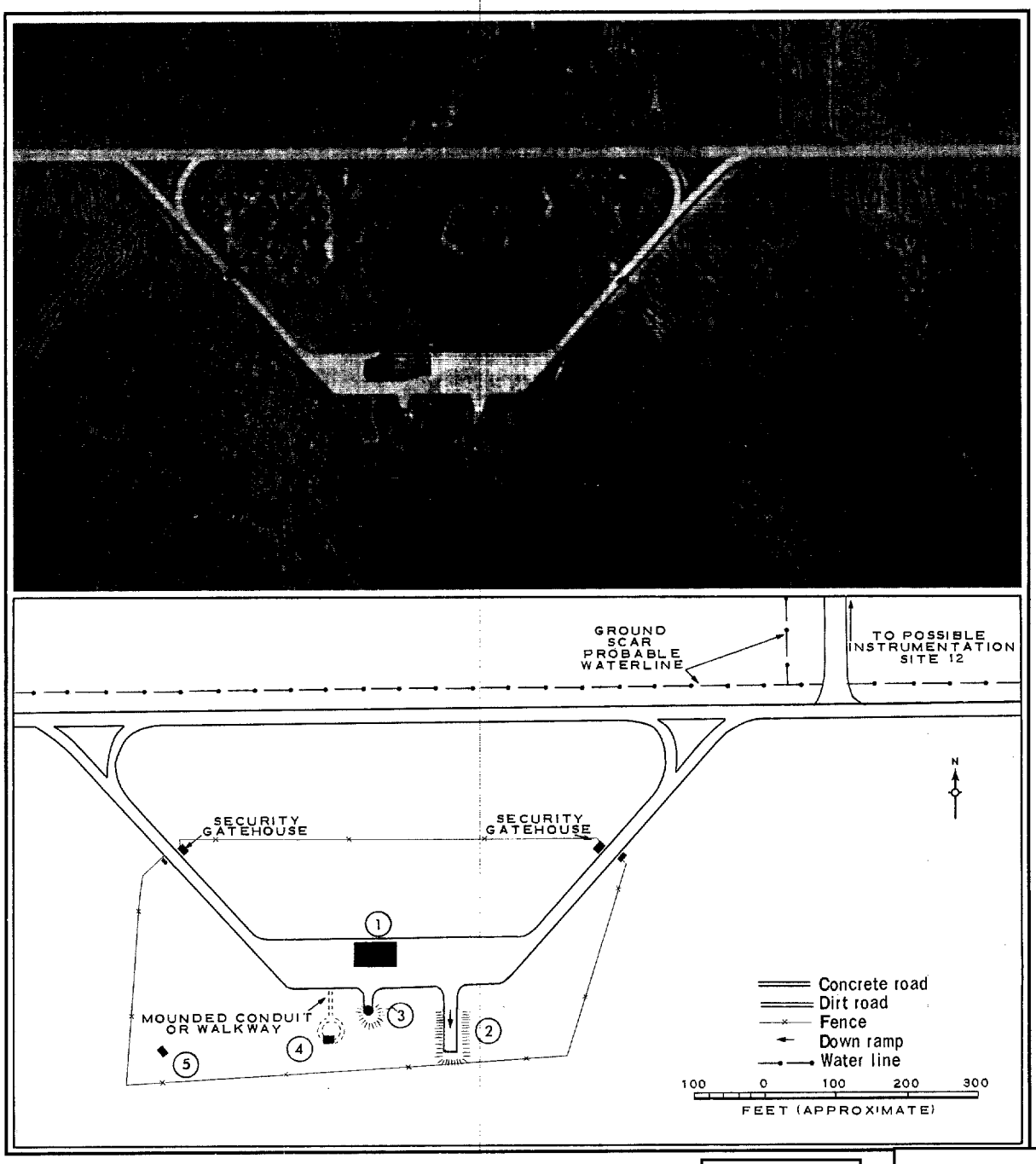


FIGURE 14. CHECKOUT AREA, SSM LAUNCH COMPLEX C

25X1

25X1D

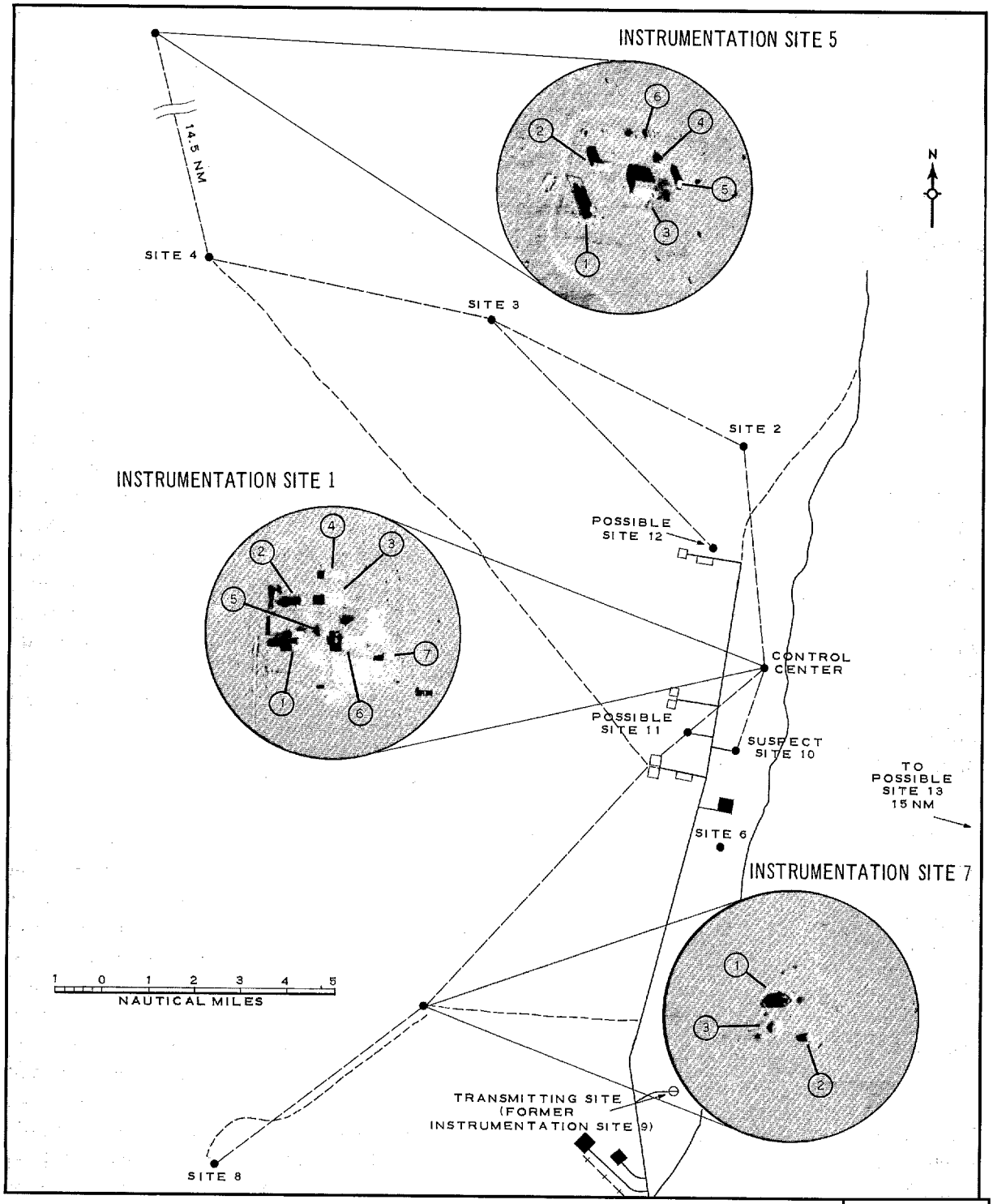


FIGURE 15. SSM INSTRUMENTATION SITES SCTMTC [redacted] (SITE 5), [redacted] (SITES 1 AND 7).

25X1

25X1D 25X1D

an exact position duplication as was evident at Launch Complex C, at the KY/Vlad MTC. SCTMTC Site 2 can be paired with Site 6, and Site 3 with 7 both by equipment and position; Sites 4 and 8 can be paired by position, but not by facilities; facilities at Site 8 are comparable to those at Site 5. Sites 5 and 8 are the extremity sites of the Vee-pattern legs. The terrain is evidently a factor here as Site 8 is located at the foot of a rough hill ridge. If Site 8 were to be paired positionally with Site 5, it would have to be in the hills.

Sites 1, 5, and 8 may be compared to the interferometer sites at the KY/Vlad MTC in that the 20-foot domes are also present at KY/Vlad MTC. Site location is also similar in that one site is directly behind the launch complexes and the other two sites form the extremity sites of the downrange legs of the rangehead instrumentation.

Former instrumentation Site 9 has been determined to be the control area for the rangehead transmitting site. The instrumentation indicators of Suspect Instrumentation Site 10 are position and ground scar tie-ins with the other sites. Possible Instrumentation Sites 11 and 12 are considered to be a portion of the rangehead instrumentation because of their location behind Launch Complexes A and C, respectively; their duplication of facilities including identical roof mounted equipment; and their tie-in by cable or underground line scarring with other instrumentation sites.

Most of the sites have several items in common such as buried water tanks, vehicle sheds, outdoor basketball courts, and fence security. Sites 1, 5, and 7 will be described in detail as representative of the Vee-pattern instrumentation sites at SCTMTC, and Possible Instrumentation Site 13 will be described because of its unique configuration and location.

SSM Instrumentation Site 1

SSM Instrumentation Site 1 (Figure 15), the control center, is a fenced site located at 41-16N 100-20E, approximately 3 nm northeast of SSM Launch Complex A and 3 nm southeast of SSM Launch Complex C. The site is served by unimproved roads, an overhead power line, a possible buried water line, and at least two other underground conduits. The site contains an observation tower mounted on a building (item 1) with a vehicular entrance; a 20-foot diameter dome mounted on one end of a small gable-roofed building (item 2); immediately behind item 2 is a flat-roofed building (item 3) with three instrumentation mounts on the roof. This building also appears to have a vehicular entrance. Along the security fence is a low building (item 4) measuring approximately 40 by 20 feet which appears to have a ramp at the rear so mobile equipment can be placed on the roof. There are also a buried water tank (item 5), a control/personnel building (item 6) measuring approximately 50 by 30 feet with a 15 by 10-foot annex, a 20 by 20-foot support building (item 7), and a basketball court with backboards.

SSM Instrumentation Site 5

The fenced Instrumentation Site 5 (Figure 15), which is the terminus site on the north leg of the SSM instrumentation Vee-pattern, is located approximately 30 nm northwest of Launch Complex C and approximately 14.5 nm north-northwest of Instrumentation Site 4. This site has essentially the same facilities as Instrumentation Site 8 and is served by an unimproved road and at least two buried lines, one of which may be a possible water line. The site contains a 20-foot-diameter dome positioned on one end of a small gable-roofed building (item 1); immediately behind item 1 is a flat-roofed instrumentation building (item 2) measuring approximately 20 by

15 feet with a roof mounting for instrumentation equipment, a ramp and a probable vehicular entrance. The site also contains a gable-roofed control/personnel building (item 3) measuring approximately 50 by 30 feet with an annex measuring approximately 15 by 10, a buried water tank (item 4), an unidentified structure measuring approximately 10 by 10 feet (item 5), a security gatehouse (item 6), and a basketball court with backboards. On [redacted] photography, a small vehicle was observed leaving the site and possible personnel were observed on the basketball court. 25X1D

SSM Instrumentation Site 7

The fence secured SSM Instrumentation Site 7 (Figure 15) is located approximately 7 nm southwest of Launch Complex A, and approximately 5.5 nm west-northwest of the rangehead transmitting site. It contains an observation tower (item 1) with a pedestal on top for mounting probable optical equipment, a probable vehicle shed (item 2), a buried water tank (item 3), and two unidentified small structures.

SSM Possible Instrumentation Site 13

The possible Instrumentation Site 13 (Figure 16) is located approximately 15 nm east of SSM Launch Complex A and has its facilities aligned on the launch complex.

The site is fence secured, has "foxholes" at the corners, and a security check building at the entrance gate. Service to the area is by unimproved roads and trails; however inside the fence a rolled and graded loop road serves the individual facilities. Included in the area are a drive-through, gable-roofed building (item 1) with its long axis aligned with SSM Launch Complex A; a gable-roofed building (item 2) and adjacent mound/grease rack, both aligned with the SSM Launch Complex A. Also inside the fence are a buried water tank (item 3), a personnel building/heating plant (item 4) with an adjacent coal pile, a possible observation tower (item 5), three small unidentified buildings, and light poles for night operations. Outside the fenced area and connected by a ground scar to the drive-through building (item 1) are three unequally spaced small buildings (only

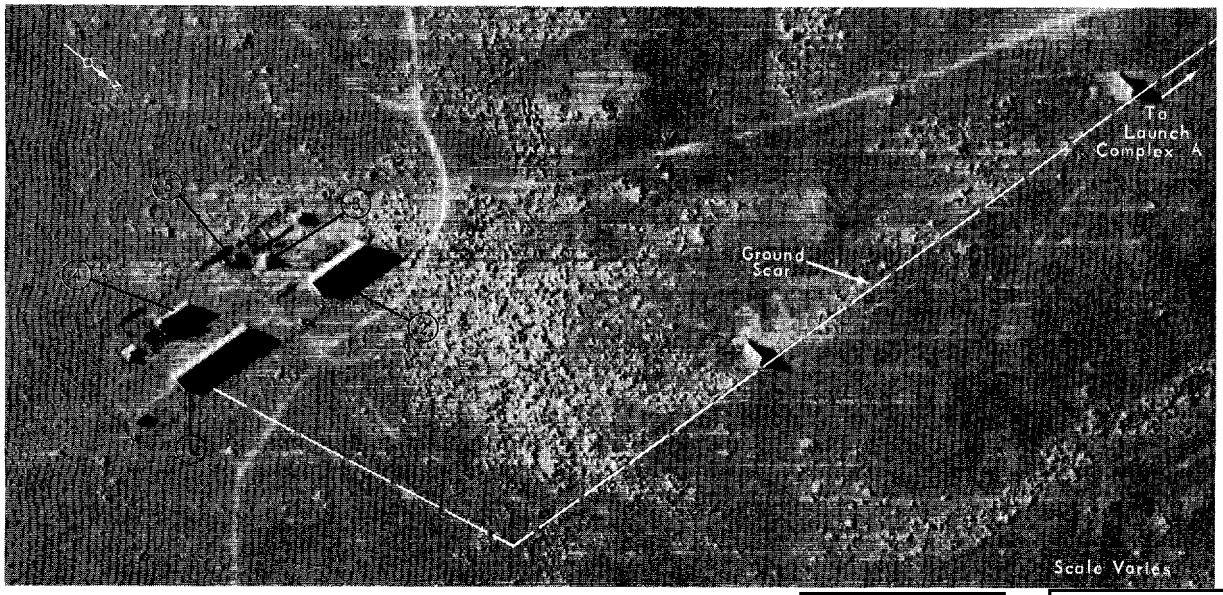


FIGURE 16. SSM POSSIBLE INSTRUMENTATION SITE 13 [redacted] 25X1

25X1D

two of which are shown on Figure 16). An imaginary extension of the ground scar between these three buildings would bisect SSM Launch Complex A.

SSM HOUSING AND SUPPORT AREA

The SSM Housing and Support Area (Figure 17) is located one nm east of the main access road serving the SSM launch complexes and is approximately 3, 5, and 7 nm by road from SSM Launch Complexes A, B, and C, respectively. This area is divided into a housing section, a vehicle maintenance and storage section, a water supply facility, and Meteorological Station No 1. Each portion is separately fence secured.

Housing Section

The Housing Section contains eight gable-roofed 2-story barracks buildings which measure 145 by 45 feet (item 1); a single-story, gable-roofed H-shaped messhall (item 2) with the legs measuring 110 by 35 feet and the crossbar measuring 90 by 35 feet; one single-story gable-roofed H-shaped probable quarters building (item 3), the legs of which measure 90 by 35 feet and the crossbar of which measures 35 by 35 feet and which has a 35-by-5-foot extended entryway; one gable-roofed, single-story heating plant (item 4) measuring 70 by 30 feet with an adjacent stack and coal pile; an adjacent single-story gable-roofed personnel building (item 5) which measures 80 by 30 feet, and two single-story, gable-roofed probable storage buildings (item 6) each of which measures 115 by 30 feet, and a single-story, gable-roofed 65 by 35 foot, support building (item 7). In addition, there are security and unidentified structures in the housing section. Small individual garden plots were located throughout the housing section on photography of [redacted]

25X1D

Vehicle Maintenance and Storage Section

The maintenance building (item 8) is the largest building in the Vehicle Maintenance and Storage Section. It is a three-bay, gable-roofed building. Each of the two larger bays measures 135 by 50 feet and the shorter bay measures 100 by 45 feet. The east side of item 8 contains a personnel doorway and the road pattern indicates that vehicle entrances are located in the north and south sides. This building appears identical to buildings in the SSM and SAM Assembly and Checkout Areas described in the Operational Support and Storage Facilities below as do the three vehicle storage sheds (item 9) which measure approximately 160 by 55 feet. The large hardstand associated with this section has two basketball courts emplaced on it. Near the entrance to this section is a dispatchers shed (item 10), a grease rack, and a small shed. The section probably maintains and garages the vehicles and equipment serving the SSM launch complexes and the SSM instrumentation sites.

Water Supply Facility

The Water Supply Facility is located north of the Vehicle Maintenance and Storage Section and consists of a mounded pipeline, an earth-mounded tank, a pumphouse, a water tower, and a probable well house located to the east, near the river.

A Water/Waste Disposal Facility is located north of the housing section. The effluent line leads to this disposal facility from both the Housing Section and the Vehicle Maintenance and Storage Section.

Meteorological Station No 1

Meteorological Station No 1 (Figure 17) is located south of the access road, at the turn into the Vehicle Maintenance and Storage Section. It contains six buildings including a probable

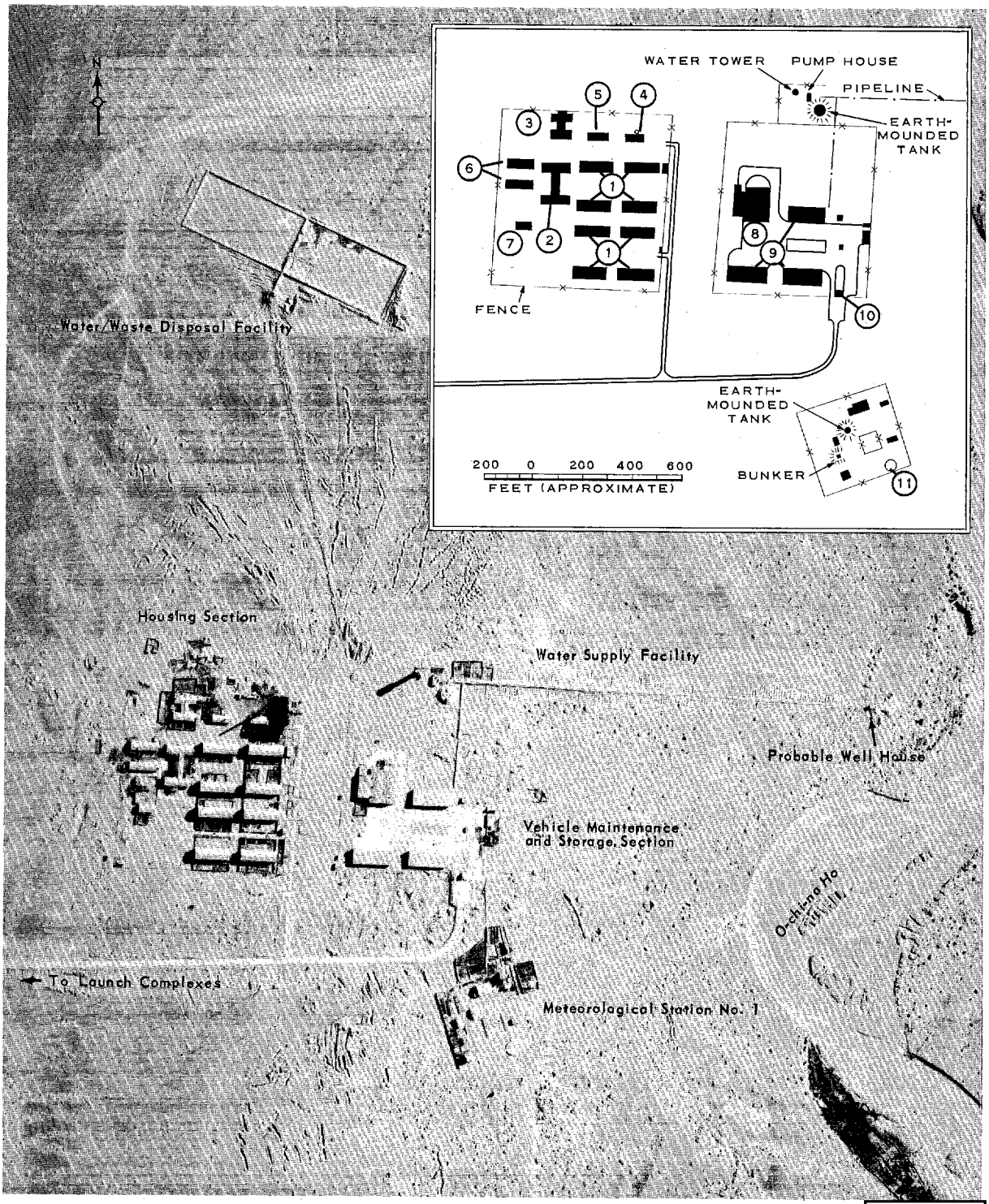


FIGURE 17. SSM HOUSING AND SUPPORT AREA, [redacted] 25X1

personnel building, two storage buildings, one unidentified support building, one construction support building, and a security gatehouse as well as a bunker, an earth-mounded tank, a possible balloon launch platform (item 11), and several small sensors in a central, fenced area. A vehicle or piece of equipment was located on the possible balloon launch platform (item 11) on the [redacted] photographic coverage. This meteorological station is a counterpart of Meteorological Station No 2 collocated with an Early Warning Radar Site, situated adjacent to the abandoned landing strip southeast of the Main Support Base.

25X1D

SAM LAUNCH FACILITIES

The SAM Launch Facilities (Figure 18) are located approximately 15 nm southeast of the SSM launch complexes and consist of a SAM Launch Area containing 2 fan-shaped SA-2 SAM launch sites, SAM Instrumentation, and a SAM Housing and Support Area. In addition, a deployed SA-2 SAM site and an adjacent barracks area (Figure 20) will be considered in this portion of the report.

SAM LAUNCH AREA

The R & D type SAM Launch Area, which is served by a good concrete road, is located approximately 15 nm southeast of SSM Launch Area A.

The two fan-shaped SA-2 SAM launch sites within the launch area (Figure 19) are individually secured by fences which measure ap-

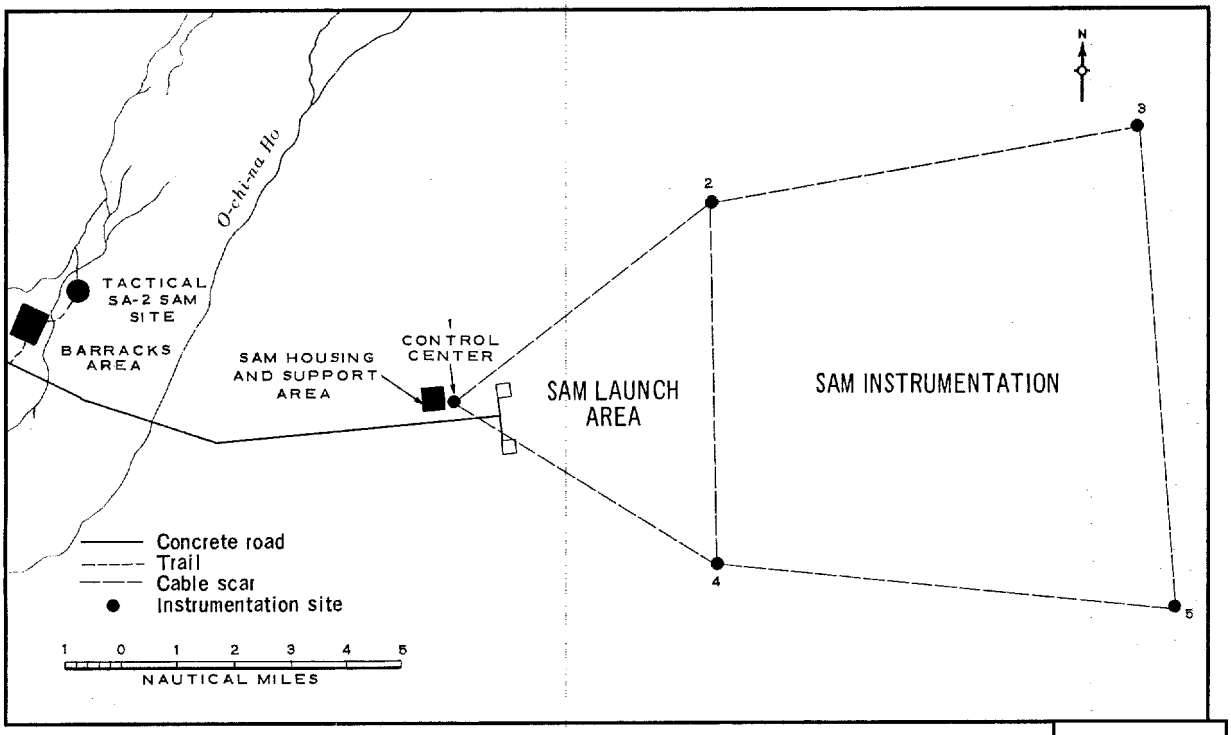


FIGURE 18. SAM LAUNCH FACILITIES.

25X1

proximately 1,700 by 1,440 feet with guard towers at each corner. The two launch sites designated A and B, from south to north, are mirror images in configuration. This results in launch pad placement on opposite sides of the radial roads in the two sites. Missile transporters would have to approach the launch pads from the center of Launch Site B and from the outer ring road of Launch Site A if SA-2 equipment were used, because the missile must be off-loaded to the left of the transporter. Although identical in configuration, SAM Launch Site B does have some additional facilities which were not observed at SAM Launch Site A. In addition these two SA-2 SAM launch sites are very similar to those observed at KY/Vlad MTC but with the following exceptions:

1. The center-to-center distance between the launch sites at SCTMTC is 5,620 feet as opposed to approximately 1,300 feet at KY/Vlad MTC.

2. Each launch site is separately secured at SCTMTC, but not at KY/Vlad MTC.

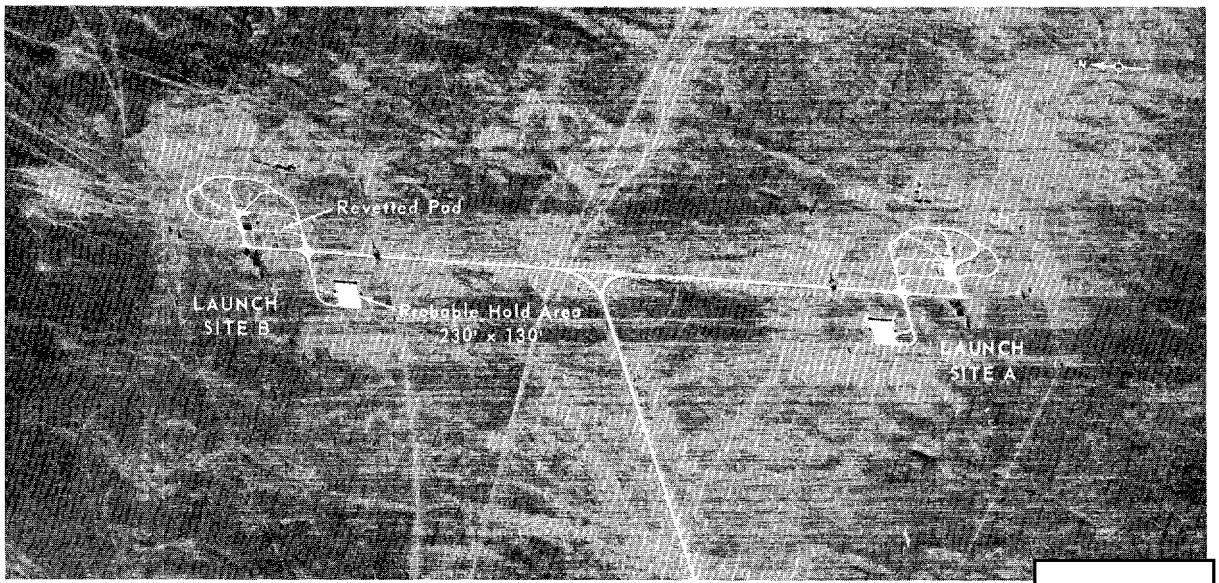
3. Only one launch pad is revetted at SCTMTC, but there are seven revetted pads at the KY/Vlad MTC.

4. The KY/Vlad MTC has adjacent launch training sites which have no counterpart at SCTMTC although ample terrain exists for their addition.

5. The probable hold areas, which are revetted hardstands at SCTMTC, have a cleaner, neater appearance and a different configuration than those at KY/Vlad MTC.

6. In place of the revetted central guidance areas at KY/Vlad MTC, the launch sites at SCTMTC have an unrevetted central guidance hardstand although Launch Site B does have a building emplaced on this hardstand.

SAM Launch Sites A and B at SCTMTC both have concrete surfaced roads throughout, with compacted natural surfacing on the six launch pads and probable hold areas, which are concrete, dual-road-served hardstands measuring



25X1

FIGURE 19. SAM LAUNCH AREA

25X1D

25X1

approximately 230 by 130 feet and which are revetted on three sides. Immediately behind each of the central guidance areas is a hip-roofed, probable fire control building which measures approximately 110 by 45 feet with two smaller structures just to the rear of this building. Two additional structures are located in each launch site: a possible generator building measuring 25 by 20 feet and an adjacent structure which measures 20 by 10 feet and is a possible mount for an acquisition radar since it is connected by a cable scar to the nearest launch pad. Each of the launch pads is connected by a cable scar to the central guidance area which is in turn connected by a cable scar to the probable fire control building. Each launch site also has security buildings at the site entrance.

SCTMTC SAM Launch Sites A and B differ in the following respects:

1. Launch Site B has a building measuring approximately 80 by 55 feet on the central guidance hardstand. On photographic coverage of [redacted] there was a probable FAN SONG radar positioned immediately in front, east, of this building and probable launchers were emplaced on each of the six pads at Launch Site B. This equipment was not present on [redacted] photography. No evaluation could be made on the presence of equipment in [redacted] because of the obliquity of the photography.

25X1D

25X1D

25X1D

2. Launch Site B has the SAM instrumentation centered on it and also has the only revetted launch pad.

25X1D 3. Photographic coverage of [redacted] revealed an unidentified-type of activity, as evidenced by ground scarring, immediately east of Launch Site A. Obliquity precluded further determination.

SAM INSTRUMENTATION

The SAM Instrumentation (Figure 20) consists of the Instrumentation Control Center, located in the SAM Housing and Support Area approximately 1.25 nm west of Launch Site B, and four downrange instrumentation sites. All four downrange sites have the same facilities which are placed in mirror image configurations. Each downrange site consists of an instrumentation building (item 1) with a raised observation platform having at least three mountings for equipment, a vehicle shed (item 2), a possible generator building (item 3), a buried water tank (item 4), a security gatehouse, and two unidentified structures. All five sites are connected by ground scars which form an instrumentation pattern very similar to that at the KY/Vlad MTC 3/ although there is a greater distance between sites at SCTMTC. Site separation at the SCTMTC is approximately 6 nm for the two sites closer to the launch area, Sites 2 and 4, and approximately 8 nm for the two sites farther east, Sites 3 and 5. East-to-west separation between Sites 4 and 5 is also approximately 8 nm. This increase in site separation gives an increased range in which accurate missile tracking may be accomplished.

The SAM Instrumentation Control Center consists of two buildings and a parking apron. One building, measuring 215 by 40 feet, has a raised center platform, measuring 35 by 25 feet, which is topped by a small probable dome approximately 15 feet in diameter. The other is a small, gable-roofed building with a standard range instrumentation dome 20 feet in diameter positioned on the top, similar or identical to those observed at instrumentation sites at the KY/Vlad MTC, Sary Shagan Anti-missile Test Center, 4/ the KY/Vlad MTC and SCTMTC "L" sites and SSM Instrumentation Sites 1, 5, and 8 at SCTMTC

described previously. Several pieces of mobile equipment, including one truck van, were positioned on the parking apron as observed on the 25X1D photography of [redacted] This equipment was also probably present on the 25X1D coverage of [redacted]

SAM HOUSING AND SUPPORT AREA

The fenced SAM Housing and Support Area (Figure 21) is located approximately 1.5 nm west of SAM Launch Site B and contains housing, a vehicle maintenance and storage section, a water supply facility, and the SAM Instrumentation Control Center described above.

The SAM Housing and Support Area contains five two-story, gable-roofed barracks buildings, three of which measure 140 by 45 feet and two of which measure 70 by 45 feet; one H-shaped, single-story, gable-roofed probable quarters building with the legs 115 by 35 feet and the crossbar 35 by 35 feet; two single-story, gable-roofed, T-shaped messhalls with the crossbars 110 by 35 feet and the stems 45 by 35 feet; two single-story, gable-roofed, probable storage buildings which measure 110 by 35 feet; one gable-roofed, single-story heating plant measuring 70 by 30 feet with a stack and coal pile, an adjacent personnel building which measures 80 by 30 feet, and several small support buildings.

The separately secured Vehicle Maintenance and Storage Section contains a vehicle maintenance and storage building measuring approximately 160 by 30 feet with an adjacent hardstand measuring approximately 160 by 40 feet; a grease rack, and a dispatcher's building.

The water supply facility includes a buried tank and a standpipe approximately 85 feet in height with a 20-foot-diameter tank on top.

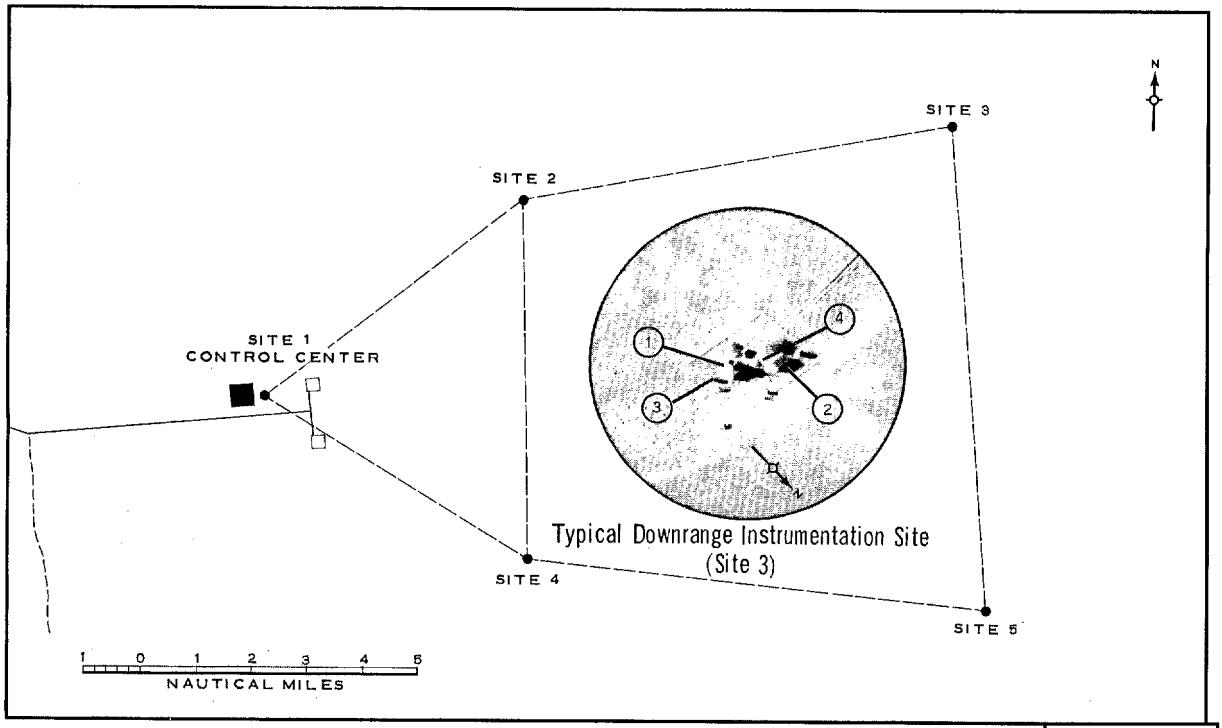


FIGURE 20. SAM INSTRUMENTATION SITES [redacted] 25X1

25X1D

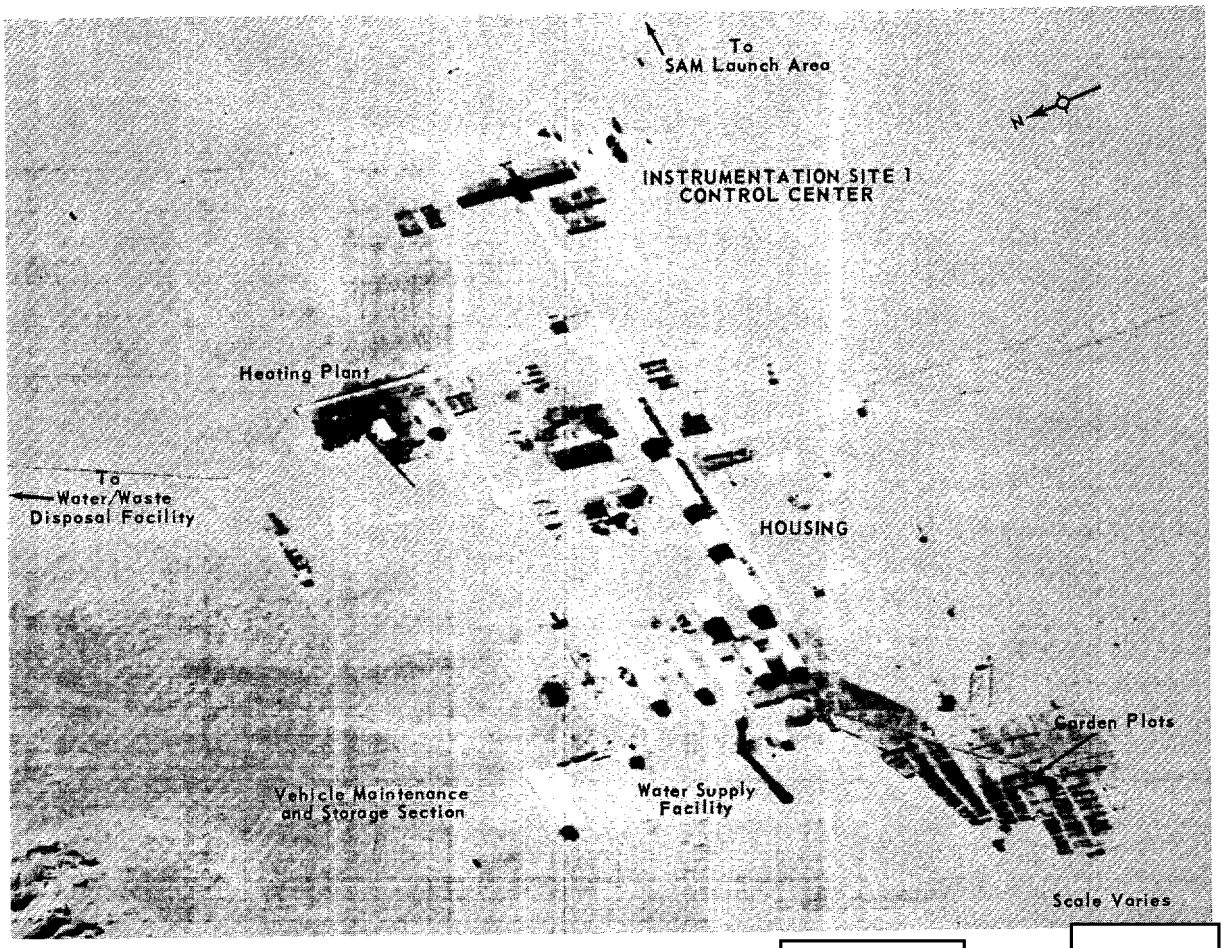


FIGURE 21. SAM HOUSING AND SUPPORT AREA [redacted] 25X1D

A walled electric power substation (not shown on Figure 21) is located at the junction of the road to the SAM Housing and Support Area with the road to the SAM launch sites. This road to the SAM Housing and Support Area is not concrete surfaced, although the road system inside the fenced area is. A security building is located at the entrance to the SAM Housing and Support Area.

Approximately one-half nm northeast of the SAM Housing and Support Area is a water/waste disposal facility which on [redacted] photography was being used for garden plots. Garden plots were also evident in the housing area on [redacted] photography.

25X1D

25X1D

DEPLOYED SA-2 SAM SITE AND BARRACKS AREA

A deployed SA-2 SAM site (Figure 22) for defense of the Missile Test Center was observed under construction on photography of [redacted] Located at 41-04N 100-20E, approximately 7 nm west of the fan-shaped, SA-2 launch sites and approximately 10 nm south-southeast of SSM Launch Complex A, the site is positioned in the approximate center of the rangehead area. Construction was begun between [redacted] and at the time of [redacted] photography, the site did not have revetments erected or equipment emplaced.

25X1D

25X1D

25X1D

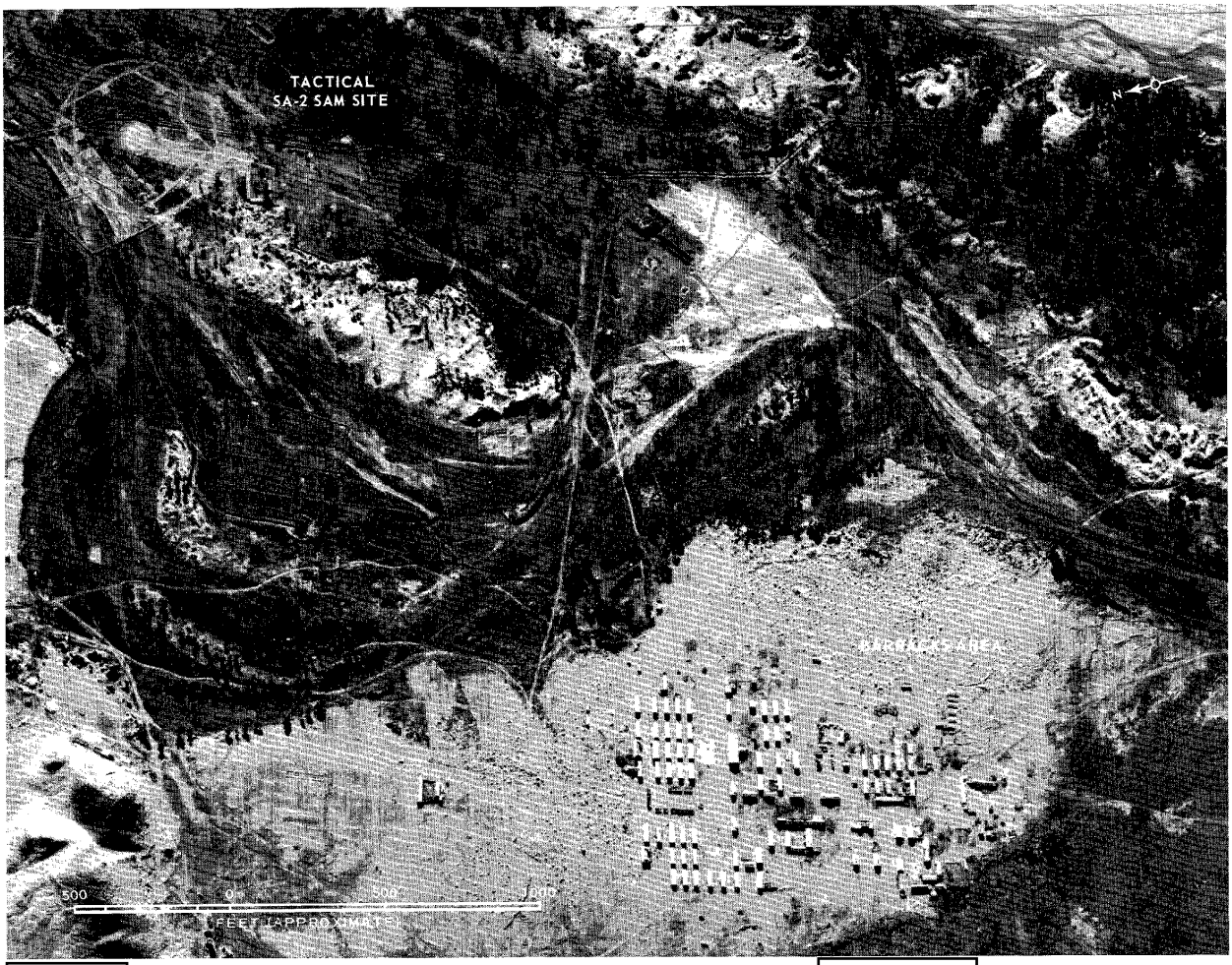


FIGURE 22. DEPLOYED SA-2 SAM SITE AND BARRACKS AREA

25X1D

Approximately 3,000 feet to the southwest of the deployed SA-2 site is an occupied barracks area apparently quartering troops engaged in construction, maintenance, agriculture, and possibly military security of the Center. Served by graded and rolled, but not concrete-surfaced roads, the barracks area contains approximately 95 buildings, of which 52 are one-story barracks measuring 70 by 20 feet with a gross floor space of 72,800 square feet.* There are also four administration buildings with a gross floor space of 9,440 square feet, four buildings associated with vehicle maintenance and storage with a gross floor space of 6,050 square feet, a heating plant and approximately 34 buildings of various sizes and configurations which have a gross floor space of approximately 42,750 square feet. Also observed in the area on [redacted] 25X1D photography were 3 basketball courts and 57 vehicles including at least 37 open-bed cargo trucks. Extensive agricultural activity extending north from the barracks area for approximately 10 nm, throughout the multicourse riverbed area, was evident on both [redacted] 25X1D photography.

*Gross floor space or gross area figures are based on roof cover multiplied by the number of stories.

OPERATIONAL SUPPORT AND STORAGE FACILITIES

Support and storage for the SAM and SSM systems at SCTMTC are provided in four dispersed installations located just west of the road between the Main Support Base and the SSM launch complexes (Figure 23). These are the SSM-SAM Assembly and Checkout Complex, the Revetted Storage and Handling Area, the Revetted Storage Area, and the Possible Propellant Handling and Storage Area.

The largest of these installations is the rail- and road-served SSM-SAM Assembly and Checkout Complex. It contains a total of 64 buildings in three component areas: Housing and Support, SSM Assembly and Checkout, and SAM Assembly and Checkout. In physical layout, the two assembly and checkout areas have little resemblance to similar facilities in the USSR. Functionally, however, the SAM Assembly and Checkout Area appears to have a marked resemblance to the Base Support Complex for the SAM Facilities at the KY/Vlad MTC. 3/ In the SSM area, there are some building similarities to KY/Vlad MTC facilities; however, at the SCTMTC, the divisions between the individual facilities are clearer and the area appears to contain a more streamlined and efficient setup for operations.

The two revetted storage areas are located approximately 9 nm south of the SSM launch

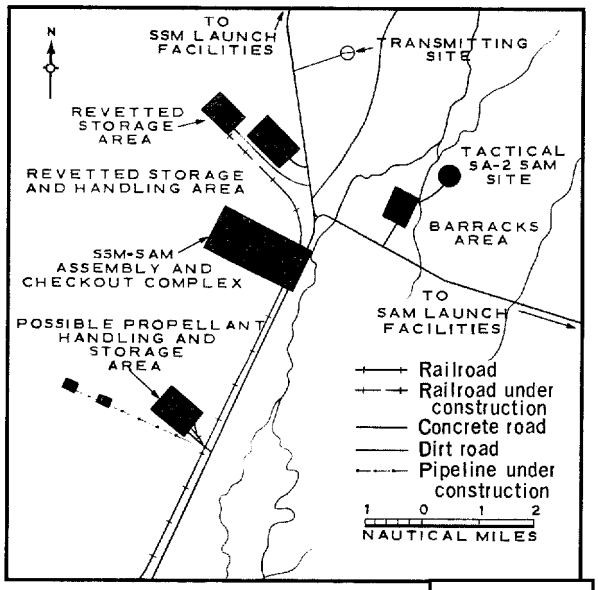


FIGURE 23. OPERATIONAL SUPPORT AND STORAGE FACILITIES. [redacted] 25X1

complexes and are approximately one nm apart. The larger of the two areas, the Revetted Storage and Handling Area, is road served only and contains 11 buildings, including support buildings. It is apparently a storage and handling facility similar in functional arrangement to the Missile Checkout and Propellant Storage Area in the SAM Facilities at KY/Vlad MTC. 3/

The smaller Revetted Storage Area will be road and rail served, but the access road has not yet been concrete surfaced and the rail has been laid only part way to the area. The area contains seven revetted storage buildings. No similar facility has been seen at the KY/Vlad MTC.

The fourth area, the Possible Propellant Handling and Storage Area, is located 4 nm south of the junction with a road leading to the SAM Launch Facilities and approximately 3.5 nm north of the Main Support Base. The area is both rail and road served and contains approximately 20 structures which differ widely in size and shape.

SSM-SAM ASSEMBLY AND CHECKOUT COMPLEX

The SSM-SAM Assembly and Checkout Complex (Figure 24) is located on the west side of the main road leading north to the SSM launch complexes and approximately one nm south of the junction with the road leading east to the SAM Launch Facilities. The distance to either the SSM or the SAM Launch Facilities is about 11 nm by road. This complex is both rail and road served. The rail line runs from the Main Support Base and two parallel, concrete-surfaced roads lead into the complex from the main road to the SSM Launch Complexes. One of the roads is on the north side of the complex and the other is on the south.

Electric power is supplied by a three-transformer substation approximately 0.5 nm north of the complex, near the intersection with the road to the SAM Launch Facilities. There are light poles throughout the complex, giving complete illumination capability to the whole complex for 24-hour operations. Approximately 0.5 nm west, at the base of a ridge, are the abandoned foundations of construction support facilities, razed prior to [redacted] photography. The SSM-SAM Assembly and Checkout Complex consists of the following three component areas: Housing and Support, SSM Assembly and Checkout, and SAM Assembly and Checkout.

25X1D

Housing and Support Area

The Housing and Support Area (Figure 25) contains a water supply facility, a housing and administration section, a rail-to-road transfer point, a motor pool, a liquid storage facility, a walled section with a loop road, and a heating plant. All except the heating plant and the rail-to-road transfer point are separately fenced. The Housing and Support Area was active in [redacted] when photography revealed a soccer field and many garden plots throughout the area and showed that the basketball courts had had considerable use.

25X1D
25X1D

The railroad facilities consist of three sidings, one to the liquid storage facility, one short siding to the rail-to-road transfer point, and one to the heating plant.

A short distance south of the complex is a large water/waste disposal facility (not shown on either Figure 24 or Figure 25).

The item numbers in the following description of facilities are keyed to Figure 25.

Water Supply Facility

The Water Supply Facility contains two semiburied tanks (item 1) with a top diameter of 45 feet and an adjacent pumphouse or valve house (item 2), 40 by 15 feet. An earth scar leads

from the tanks to the river. Also considered in this facility is a water tower (item 3) approximately 105 feet high. Adjacent to this water tower is the gable-roofed heating plant (item 4), 90 by 45 feet, and an adjacent stack approximately 90 feet high.

Housing and Administration Section

The Housing and Administration Section contains 13 structures. There are four gable-roofed, two-story barracks buildings (items 5-8), each of which measures 145 by 45 feet, and one two-story gable-roofed barracks/admin-

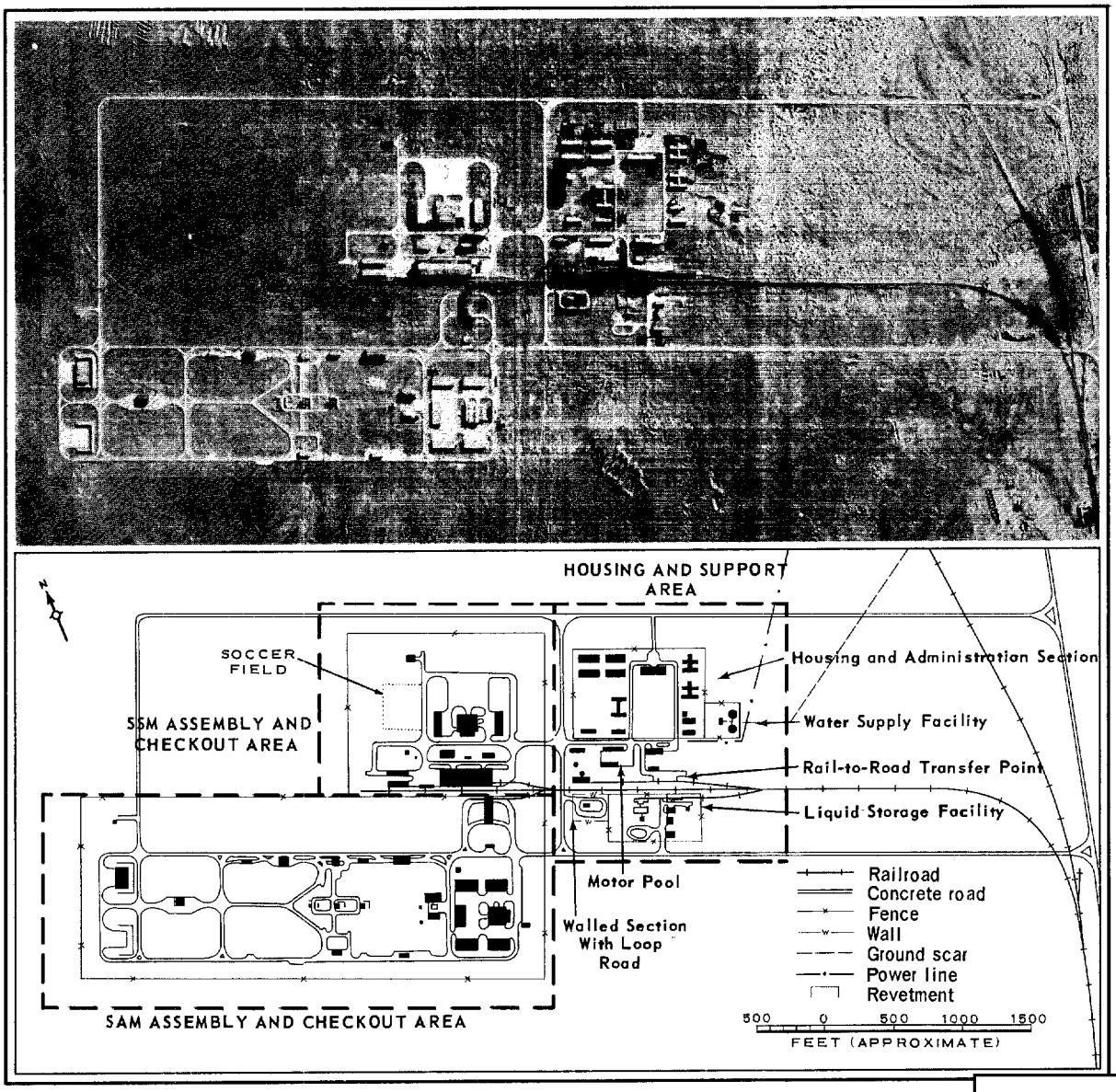


FIGURE 24. SSM-SAM ASSEMBLY AND CHECKOUT COMPLEX

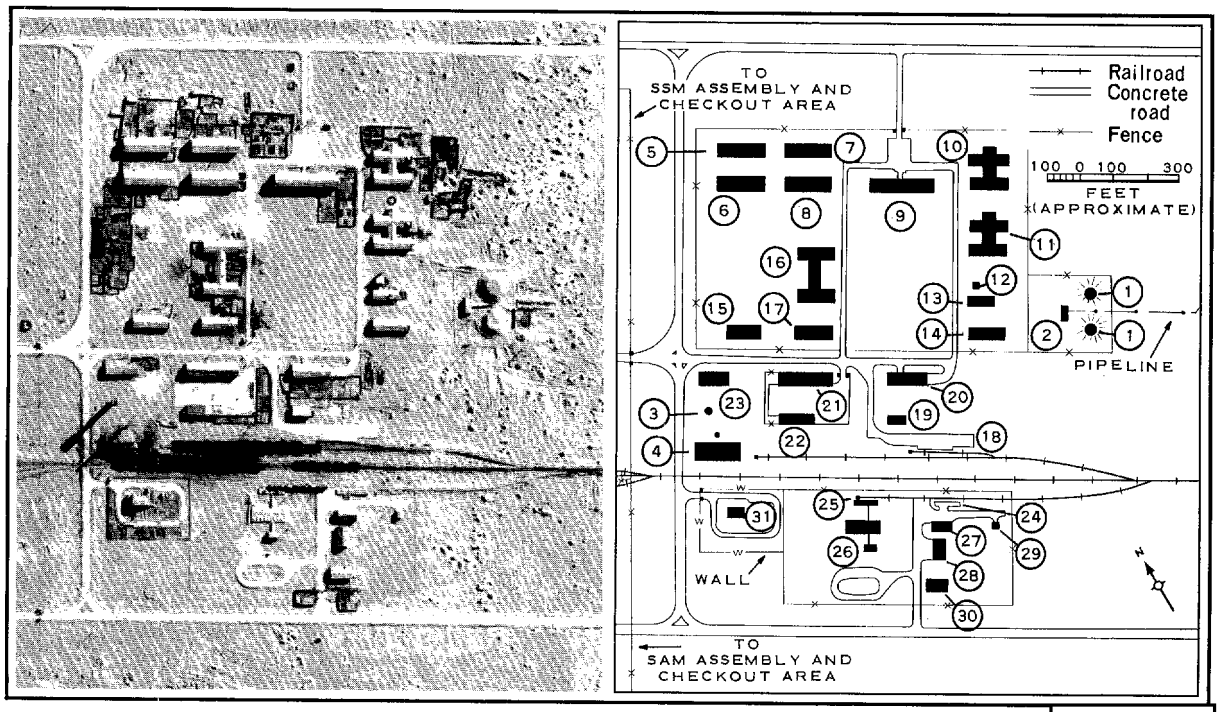


FIGURE 25. HOUSING AND SUPPORT AREA, SSM-SAM ASSEMBLY AND CHECKOUT COMPLEX, [redacted] 25X1 25X1D

istration building (item 9) 190 by 40 feet; two gable-roofed, one-story, H-shaped probable quarters buildings (items 10 and 11) with legs 115 by 30 feet and crossbars 30 by 30 feet, each with a 30 by 20-foot extended entryway; a 25 by 20-foot heating plant (item 12) adjacent to a gable-roofed personnel building (item 13), 80 by 30 feet; two gable-roofed probable storage buildings (items 14 and 15), each 105 by 35 feet; and two gable-roofed messhalls, one (item 16) H-shaped, with legs of 105 by 35 feet and a crossbar of 90 by 35 feet, and the other (item 17) rectangular, 110 by 35 feet.

Rail-to-Road Transfer Point

The Rail-to-Road Transfer Point contains an unloading dock (item 18) approximately 170 by 15 feet; a 55- by 30-foot flat-roofed building (item 19), and a gable-roofed, 115- by 30-foot building (item 20).

Motor Pool

The separately fenced Motor Pool contains a grease rack; a concrete-surfaced, vehicle parking hardstand with basketball backboards emplaced upon it; a gable-roofed parking shed, 160 by 35, (item 21); a flat-roofed parking shed 110 by 30, (item 22), and outside the fence to the west, a gable-roofed building 95 by 30 (item 23).

Liquid Storage Facility

The Liquid Storage Facility contains an approximately 70- by 10-foot railroad car off-loading dock (item 24); a railroad unloading stand for liquids with two columns (item 25), at which four tank cars and a possible yard switcher were located on [redacted] photography; 25X1D a tank area with adjacent flat-roofed pumphouse (item 26), measuring 25 by 15 feet; a loop road with a truck-loading point on the widened portion; two gable-roofed storage buildings (items

27 and 28) each measuring 55 by 35 feet; a small flat-roofed storage structure (item 29) measuring 20 by 15 feet; and a gable-roofed possible personnel building (item 30) measuring 60 by 30 feet.

Walled Section with a Loop Road

The walled section with a loop road contains a flat-roofed building (item 31), measuring 70 by 30 feet with a two-story, gable-roofed center section measuring 35 by 30 feet.

SSM Assembly and Checkout Area

The SSM Assembly and Checkout Area (Figure 26) is a rail- and road-served rectangular area with a perimeter road enclosing 12 structures, 2 of which are drive-through. Lack of revetments in this area indicates an absence of explosives. The structures are all grouped in the eastern half of the rectangle and are enclosed by a fence measuring 1,440 by 1,210 feet which also partly delimits the SAM Assembly and Checkout Area. The western half of the rectangle is unoccupied. There is sufficient room in this unoccupied half for 100 percent expansion of the present SSM assembly and checkout facilities.

The roads are concrete surfaced and characterized by wide-radius curves at all turns and intersections. All of the buildings in the SSM area, except where otherwise noted, have either a flat roof, or a very low arch or gable roof.

A description of the structures and other features follows (items are keyed to Figure 26).

The gable-roofed drive through building (item 1) probably contains the assembly and initial checkout facilities. This 380- by 80-foot building is approximately three stories high, with a 380- by 30-foot one-story bay running the length of the north side of the building. At the east end of the building is a concrete hardstand. Four vehicles, approximately [redacted] one probable vehicle, and one unidentified object were parked on this hardstand on [redacted]

25X1D

25X1D

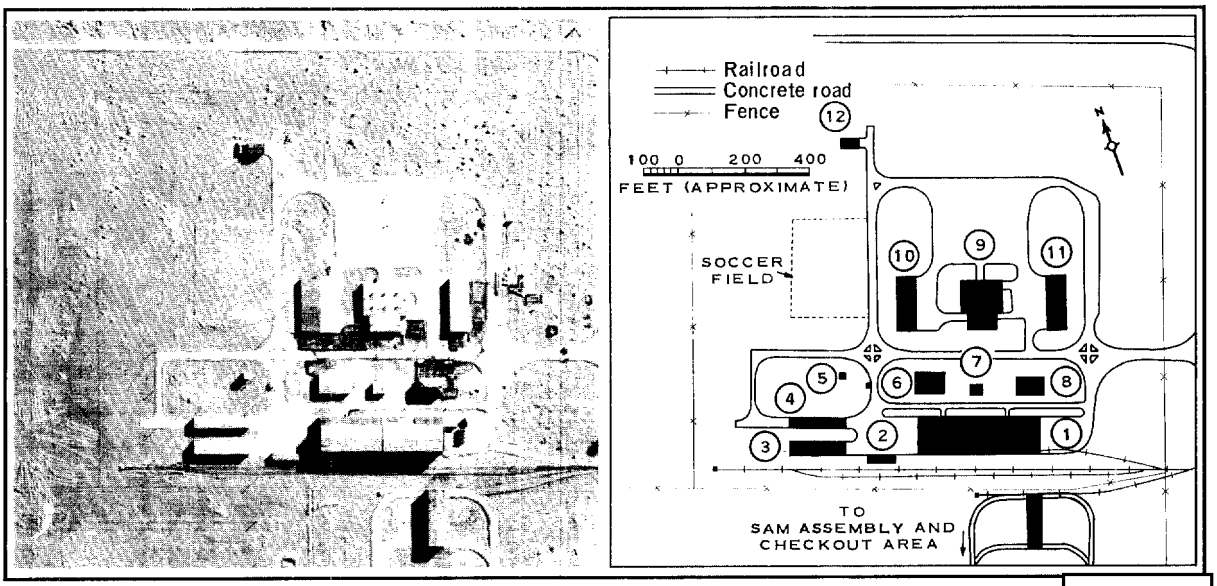


FIGURE 26. SSM ASSEMBLY AND CHECKOUT AREA, SSM-SAM ASSEMBLY AND CHECKOUT COMPLEX [redacted]

25X1

25X1D

photography. A rail siding goes into the east end and two sidings parallel the south side of the building.

An 80- by 20-foot flat-roofed probable storage shed (item 2) has five vents on the roof. Trackage on the concrete indicates two entrances at the east end of item 3, a 170- by 40-foot probable storage building.

A loop road serves a 170- by 30-foot drive-through building (item 4). The road encircles a structure 15 by 10 feet and a flat-roofed structure (item 5), approximately 15 by 15 by 40-feet high. This structure is similar to item 17 in the Possible Propellant Handling and Storage Area (Figure 30) and item 18 in the SAM Assembly and Checkout Area (Figure 27).

There are two probable missile components storage buildings, item 6, which measures 95 by 60 feet, and item 7, which measures 35 by 35 feet. A hip-roofed, 75- by 40-foot probable personnel building (item 8) measures 75 by 40 feet.

A vehicle maintenance building (item 9) has three bays, with a gable roof over each. The north and center bays combined measure 130 by 95 feet and the south bay measures 100 by 45 feet.

Two vehicle parking sheds (items 10 and 11) measure 160 by 55 feet each. The greater width of these standard-length vehicle storage sheds may be for parking SSM transport vehicles. In the vicinity of these parking sheds are a vehicle grease rack, a basketball court on the large concrete hardstand, and a soccer field.

A 50- by 30-foot building (item 12) has an open extension to the west which contains a blast deflector or flame bucket. A shed, 25 by 10 feet, is on the south side of the building. Item 12 is identical to the building observed in the Operational Support Facility of the Lien-shan Cruise-Missile Launch Site in China, on [redacted] photography.

The total building area of this assembly and checkout area at the SCTMTC is approximately the same as at KY/Vlad MTC in the Test and Support Complex. The large missile assembly and checkout building (item 1) is similar to the one at KY/Vlad MTC Test and Support Complex except the building at KY/Vlad MTC has a towerlike structure at one end.

Construction in the area appears complete. No outside storage of material is apparent. One dead-end road may indicate provision for expansion of the present facilities. One unusual feature is noted on the four turns between the assembly and checkout building and the north access road and the two turns into the large hardstand serving the vehicle maintenance and storage building. These turns have radii of approximately 160 feet and are wider than any of the others in the area. Construction of these was probably for the greater length of missile transport equipment. Activity in this area on [redacted] photography is indicated by the previously mentioned vehicles, the darkening of the hardstand between the basketball backboards, and the cultivation of garden plots in the vehicle maintenance section and adjacent to buildings 6, 8, 9, and 10. In [redacted] an open ditch crosses the road east of building 10 and two ditches cross the road between buildings 6, 7, and 8, and buildings 9, 10, and 11.

SAM Assembly and Checkout Area

The SAM Assembly and Checkout Area (Figure 27) is a fenced area, measuring 3,420 by 1,350 feet, on the south side of the SSM Assembly and Checkout Area. The SAM Assembly and Checkout Area is a long, narrow area bounded by a perimeter road. A significant feature of the road system in this area is the wide-radius turns. The facility contains 26

25X1

buildings, including 3 revetted and 9 drive-through. An outstanding characteristic is the straight line of drive-through buildings on the north side of the area, indicating an assembly-line type of operation. The item numbers in the following description are keyed to Figure 27.

A gable-roofed, drive-through building (item 1), measuring 175 by 50 feet, is rail served and probably is the initial receiving and storage building. The drive-through facilities are at both ends, across the building rather than lengthwise.

A gable-roofed, 55 by 40 foot probable storage building (item 2) is located on a concrete hardstand.

A 135- by 70-foot drive-through building (item 3), has a full length monitor roof.

Four other buildings in the north of the area (items 4, 5, 6, and 7) are all gable-roofed

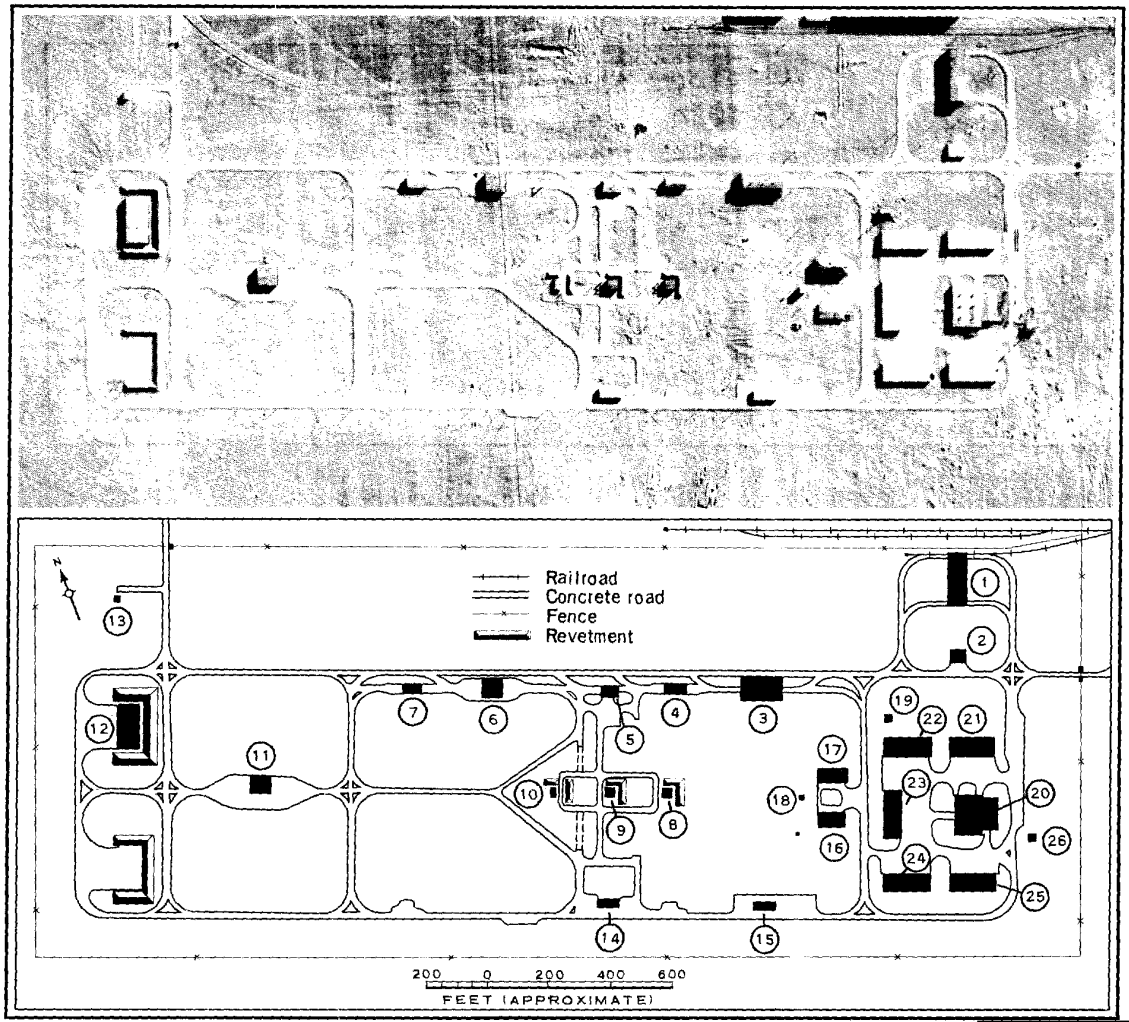


FIGURE 27. SAM ASSEMBLY AND CHECKOUT AREA, SSM-SAM ASSEMBLY AND CHECKOUT COMPLEX

25X1

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25X1

drive-through buildings measuring 95 by 40 feet, 55 by 40 feet, 65 by 55 feet, and 70 by 30 feet, respectively. The straight-line positioning of these buildings and building 3 indicates their association with the assembly and checkout procedure. It should be noted, however, that the turnouts in the road system allow the missile to leave the assembly line after each building.

Two flat-roofed buildings (items 8 and 9), each 35 feet square, have L-shaped revetments on their north and east sides and overhead handling devices of very heavy construction over the road. They are both served by a loop-road system that also passes between a revetment and item 10, a flat-roofed building 40 by 15 feet. Items 8, 9, and 10 are connected by road to items 5 and 14.

A gable-roofed, drive-through, 70- by 60-foot building (item 11) is on a concrete hardstand which is located on the road running lengthwise through the center of the SAM Assembly and Checkout Area.

A revetted storage building (item 12), measuring 150 by 80 feet with 3 gable-roofed bays, is fronted by a 150- by 130-foot concrete hardstand. A small, flat-roofed, 20- by 15-foot building (item 13) is located to the north of the revetted building (item 12).

Two gable-roofed probable storage buildings, items 14 and 15, each measure 70 by 30 feet. Both are located on concrete hardstands and both have a drive-through capability.

Two hip-roofed probable personnel buildings (items 16 and 17), measure 85 by 45 feet and 110 by 45 feet respectively. Located just to the west and midway between these buildings is a vertical structure (item 18), approximately 15 feet square. These three buildings (16, 17, and 18) are served by a loop road with curves of very short radii, indicating that the road can be used by vehicles of short wheelbase only. A 25-foot-square, gable-roofed building (item 19) has two stick masts on the roof.

A three-bay vehicle maintenance building (item 20) has a gable roof over each bay. The east bay measures 100 by 45 feet, the other two bays combined measure 130 by 95 feet.

Five flat-roofed vehicle parking sheds (items 21 through 25) each measure 160 by 55 feet. In the area of these five buildings are two grease racks.

An unidentified, gable-roofed 30-foot-square building (item 26) has a stick mast on top approximately 85 feet high.

Two probable storage buildings (items 14 and 15) are on the south side of the area, but the road and hardstand arrangement could indicate planning for another assembly-line type of operation in the future.

The number of buildings in the SAM Assembly and Checkout Area is approximately the same as generally found in the Soviet support areas. However, the layout of the facilities is not identical to previously observed Soviet Support Facilities.

The SAM Assembly and Checkout Area on [redacted] photography was the only large area at SCTMTC that did not have any basketball courts or individual garden plots in evidence. 25X1D

REVETTED STORAGE AREAS

Two revetted storage areas, one designated the Revetted Storage and Handling Area, and the other, the Revetted Storage Area, are located approximately 2 nm north of the SSM-SAM Assembly and Checkout Complex. The two areas are oriented in a general west-northwest-east-southeast direction and are separated by approximately one nm. Each is separately fenced with guard towers at the four corners and a gatehouse at each of the entrances. Each area has light poles along the perimeter fences as well as throughout for night operations.

Revetted Storage and Handling Area

The Revetted Storage and Handling Area (Figure 28) is road served only. A water supply facility and heating plant, each separately fence secured, are located along the access road, just outside the entrance to the storage and handling section.

A description of the structures along the access road to and in the Revetted Storage and Handling Area follows (item numbers are keyed to Figure 28).

Water Supply Facility

This facility contains a water tower (item 1), approximately 80 feet high, two semiburied tanks (item 2), approximately 35 feet in diameter,

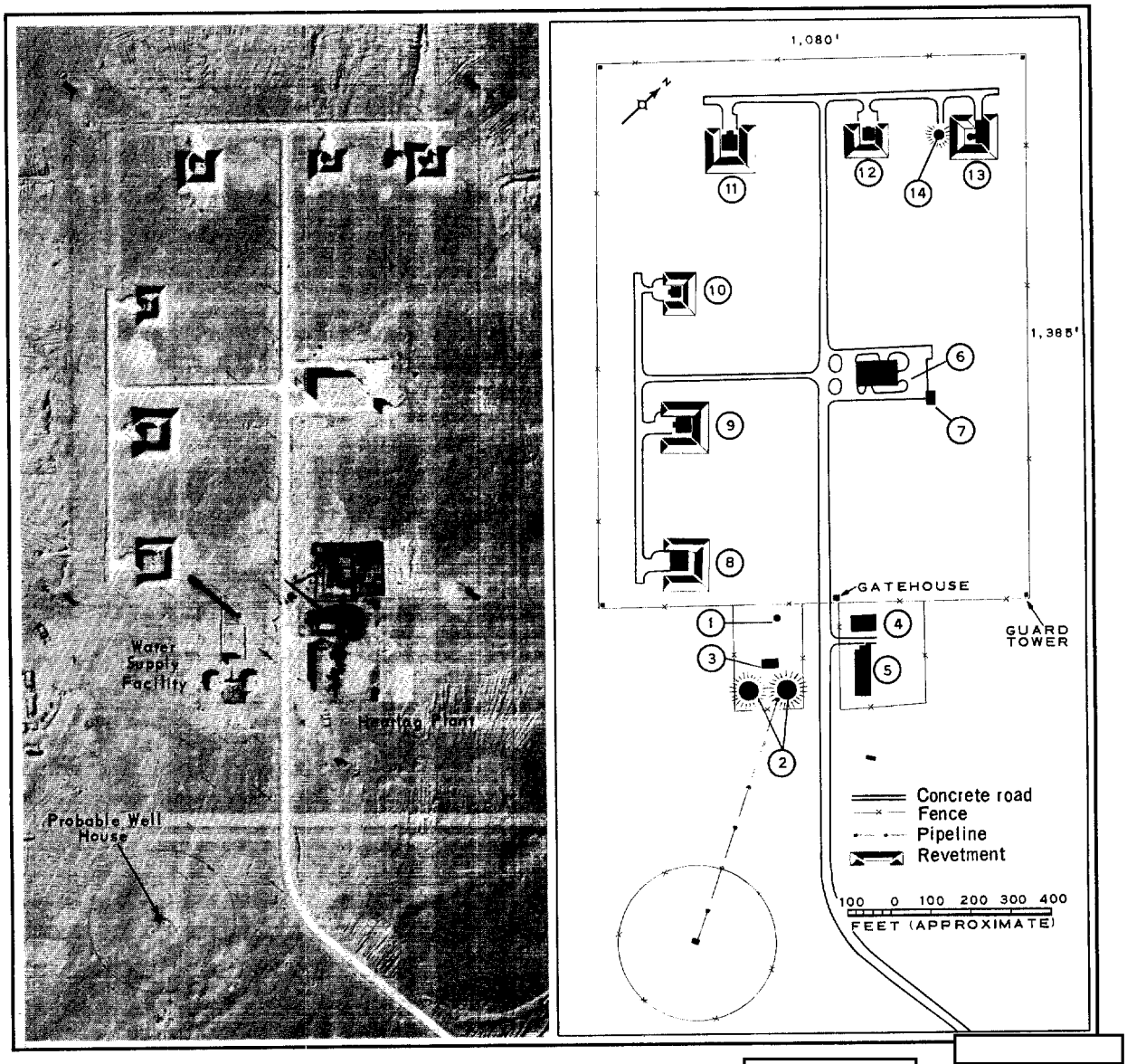


FIGURE 28. REVETTED STORAGE AND HANDLING AREA

25X1

25X1D

and a pumphouse or valve house (item 3), approximately 35 by 20 feet. Approximately 700 feet to the southeast is a probable well house with a typical circular fence and a pipeline running to the water supply facility.

Heating Plant

The 40- by 30-foot, gable-roofed heating plant (item 4) has a 30- by 15-foot flat-roofed annex on the northwest and an adjacent coal pile. There appeared to be a faint plume of smoke coming from the approximately 70-foot-tall 25X1D stack on [redacted] photography. The presence of this heating plant may possibly indicate a requirement for temperature and even, possibly, humidity control for the material stored in the area. Located near the heating plant is a gable-roofed probable personnel building (item 5) measuring 105 by 35 feet. A basketball court and garden plots were adjacent to the personnel 25X1D building and the heating plant on [redacted] photography.

Storage and Handling Section

This storage and handling section is approximately 1,385 feet long and 1,080 feet wide. It contains six dispersed revetted buildings, and one centrally located handling building.

A step gable-roofed handling building (item 6) measures 110 by 55 feet with the higher section measuring 75 by 55 feet. This building has concrete hardstands at both ends, drive-through capability, and at either end of the building an overhead, inverted U handling structure approximately 15 feet high and 20 feet wide.

A small flat-roofed structure (item 7) measures 25 by 20 feet and is located on the east corner of the apron, on the northeast side of item 6. There is a flat-roofed shed 20 feet long and 10 feet wide on the northeast side of Item 7.

Two "T" roads emanate from the area of building 6. The first is a continuation of the entrance road to the north-northwest; the second runs at right angles to the first. Ground scarring indicates that original plans called for these roads to be joined.

The revetted buildings (items 8 through 13) are dispersed in two groups of three each along the crossbars of the "T" roads and are each separated by approximately 325 feet.

A gable-roofed storage building (item 8) measures 40 by 40 feet with two vents on the roof. Another gable-roofed storage building (item 9), measures 30 by 30 feet, has a covered entryway 20 by 10 feet. An overhead handling facility is located in front of item 9. It consists of two vertical posts approximately 20 feet high topped by a 15-foot-long crossbar.

A storage structure (item 10) has two vents on its flat roof, measures 20 by 10 feet, and has a covered entrance 10 by 5 feet. Item 12 is identical to Item 10. A gable-roofed storage building (item 11) measures 30 by 30 feet and also has a covered entrance 20 by 10 feet. In front of this building is an overhead handling device consisting of two vertical posts approximately 20 feet high topped by a crossbar 15 feet long. On the roof are two vents. This building is similar to building 9 except for the vents.

A 25- by 15-foot building (item 13), is different from the other structures in the area in that it has a domed cylinder 15 feet in diameter adjacent to one end. Two revetted structures similar to item 13 with domed roof sections have been observed in the SAM support facility at Istra. Another feature unique to item 13 is the presence of a drive-in, earth-mounded, round bunker (item 14) just southwest of the revetment around item 13. This round bunker is 55 feet in diameter at the bottom and 30 feet in diameter at the top.

Revetted Storage Area

The Revetted Storage Area (Figure 29) has no completed permanent transportation facili-

ties. The rail line has had the roadbed graded, but the track has only been laid part of the way to the area. The road to the area had been graded and rolled, but had not been concrete surfaced by the time of the [redacted] photography. Inside the fenced area, the rail has probably been emplaced and the rail-to-road transfer point and the loop road have been concrete surfaced. On [redacted] photography, personnel can be seen along the loop road.

A very faint ground scar can be detected between the Revetted Storage and Handling Area and the Revetted Storage Area, but it has not been determined if this indicates buried pipes. Some buried conduits are present in the Revetted Storage Area, but if temperature control or water facilities are necessary in this area, they can be supplied only from the Revetted Storage and Handling Area.

The Revetted Storage Area is enclosed by a fence with guard towers and measures approximately 1,760 by 1,055 feet, with the storage facilities inside the rectangle bounded by a concrete-surfaced loop road.

A description of the structures and other features of the area follows.

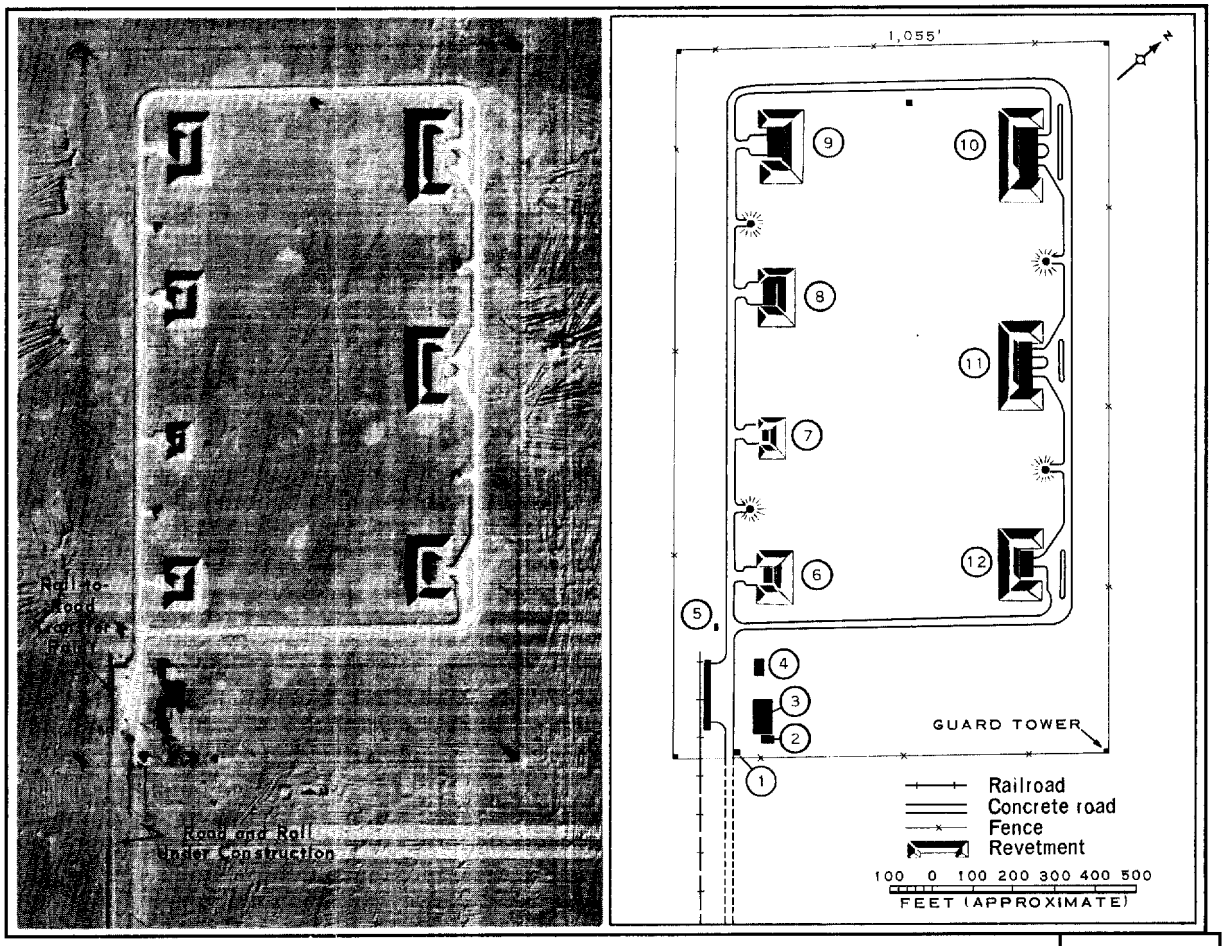


FIGURE 29. REVETTED STORAGE AREA, [redacted]

Rail-to-Road Transfer Point

Within the rail-to-road transfer point are a 165- by 15-foot unloading dock and a 150- by 55-foot concrete hardstand. Basketball backboards had been emplaced on the transfer point hardstand on [redacted] photography. Adjacent to this point are a security gatehouse (item 1) measuring 15 by 10 feet; an unidentified flat-roofed structure (item 2) measuring 20 by 10 feet; a gable-roofed probable personnel building (item 3) measuring 65 by 35 feet; a low-gable-roofed support building (item 4) measuring 35 by 25 feet; a flat-roofed support building (item 5) measuring 20 by 10 feet.

25X1D

Storage Section

The revetted storage section contains seven buildings (items 6 through 12) and four semiburied probable water tanks. The buildings are all conventional, road-served, revetted, flat-roofed storage buildings unless otherwise noted. All except items 6 and 9 have two roof vents; items 6 and 9 only have one vent each. Item 6 is a 20- by 15-foot building. Item 7 is a 20- by 10-foot building. Item 8 is a 30- by 20-foot building. Item 9 is a 60-by 20-foot building. Item 10 is a low, gable-roofed building measuring 120 by 30 feet with two extended entryways. Item 11 is a low, gable-roofed building measuring 100 by 30 feet with two extended entryways. Item 12 is a low, gable-roofed building measuring 60 by 30 feet with one extended entryway. Spaced generally equidistant between the adjoining buildings, that is, between items 6 and 7, 8 and 9, 10 and 11, and 11 and 12, are four small, road-served round objects approximately 20 feet in diameter, that may be semiburied probable water tanks.

POSSIBLE PROPELLANT HANDLING AND STORAGE AREA

The Possible Propellant Handling and Storage Area (Figure 30) is located approximately 4 nm south of the SSM-SAM Assembly and Checkout Complex. This area is rail and road served, and in [redacted] there were rail cars on the siding within the secured area. At that time, new construction was evident approximately 0.7 nm west-northwest of the operations section. This was the only new construction activity within the entire Operational Support and Storage Facilities.

25X1D

The roads within the Possible Propellant Handling and Storage Area are all concrete surfaced except across the north end of the area where they are graded and rolled only.

The area contains the following components: a maintenance section, a water supply facility, an operations section, and two unidentified facilities, one 0.5 nm west-northwest of the Operations Section and the other 0.7 nm west-northwest of the Operations Section. Also evident in the vicinity are construction support facilities.

A description of the principal features in the area follows (items are keyed to Figure 30).

Maintenance Section

This section contains a gable-roofed heating or steam plant (item 1), 30 by 20 feet; a hip-roofed barracks/storage building (item 2), 100 by 40 feet, and item 3, a gable-roofed barracks/storage building 65 by 35 feet.

Water Supply Facility

The fenced Water Supply Facility contains two semiburied tanks (item 4) with a top diameter of 25 feet, a 35- by 20-foot valve house or pumphouse (item 5) and a water tower (item 6) approximately 85-feet high with a top diameter of 20 feet. Approximately 900 feet south of the water supply facility is a fenced well house. Open ditches for pipelines under construction lead from this well house and two other probable well houses to the new construction activity to the west-northwest.

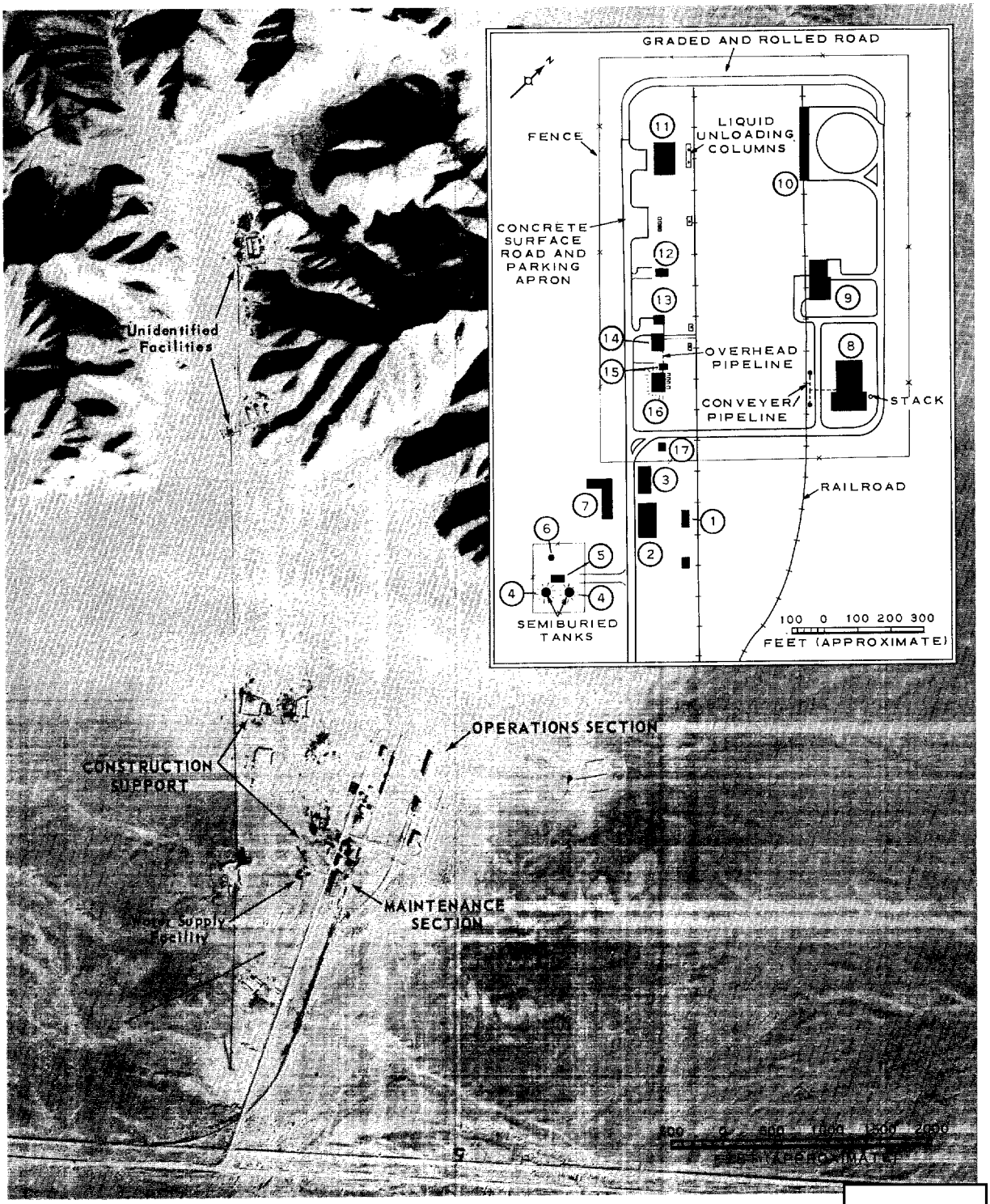


FIGURE 30. POSSIBLE PROPELLANT HANDLING AND STORAGE AREA

25X1

25X1D

Construction Support Facilities

There are approximately 35 construction support buildings in the general vicinity of the L-shaped construction support building (item 7) that are associated with the construction activi-
25X1D ties in the area. On [redacted] photography, there were 16 trucks, (8 of which were in motion), 2 small unidentified vehicles in motion, and at least 5 basketball courts in the area.

Operations Section

The Operations Section is a rail- and road-served, rectangular, fence-secured area 1,250 feet long and 935 feet wide. Inside the fence there is a concrete perimeter loop road and 10 structures. Three of these structures are on the east side of the rectangle and seven smaller ones are on the west side. One of these structures (item 10) is a rail-through building and five of them (items 9, 10, 11, 13, and 14) have road-served concrete hardstands. The two rows of buildings are served by separate rail sidings with offloading equipment on both sidings. There are light poles just inside the perimeter fence and throughout the area for night operations.

The road within the Operations Section is concrete surfaced except across the north end, where it is graded and rolled only. Road and hardstand intersections are curved to provide a wide radius at each turn. All turns providing access to the rail-through building (item 10) have radii of approximately 100 feet. The intersection just inside the fence is of special interest, as there are two turns of different radii on the road to the eastern side of the area.

A basketball court and several garden plots were observed in the Operations Section on
25X1D [redacted] photography. The buildings within this section (items 8 through 17) are all dissimilar in size and configuration.

The T-shaped building (item 8) is the largest building within the Possible Propellant Handling and Storage Area. The section forming the crossbar of the "T" has a flat roof and measures 105 by 35 feet. The stem of the "T" is taller than the crossbar and has a gable roof. The stem measures 100 by 70 feet. A stack is located near the southeast corner of the building, but there is no evidence of any fuel. This would indicate that the stack may be used as a vent. On the west side of the building is a T-shaped open structure that apparently is a conveyer or a pipeline between the building and the rail siding. Two vertical towers/unloading columns are adjacent to the siding and an overhead conveyer/pipeline connects the two with a line into the building. There are no concrete aprons at item 8.

A flat-roofed building (item 9) has a high bay on the north end measuring 50 by 25 feet, and a larger bay on the south end measuring 65 by 45 feet. A lower bay, measuring 115 by 15 feet, runs the length of the building on the west side. A similar bay on the east side of the building measures 65 by 15 feet. Two concrete hardstands are adjacent to this building and a rail siding closely parallels the long west bay.

The flat-roofed, rail-through building (item 10) measures 215 by 20 feet. The rail siding running through it lengthwise. A concrete hardstand served from a circular road pattern runs the full length of the east side of item 10. A portion of a rail car can be seen in the south entrance of the building.

A rectangular, gable-roofed building (item 11) measures 90 by 55 feet, including a low bay along the west side. A concrete hardstand is on the west side of the building. However, there is an unpaved gap between the building and the hardstand. To the rear of this building, along the rail siding, is a platform with two vertical columns for unloading liquids from railroad cars.

Between items 11 and 12 is a concrete hardstand approximately 60 feet wide. Two basketball backboards have been placed on this hard-

stand. This hardstand faces four unidentified objects each approximately 10 feet long and 5 feet wide. To the rear of these objects is a platform at the rail siding similar to the one behind item 11, but with only one liquid unloading column.

Item 12 is a flat-roofed building 30 by 20 feet. A graded, but not concrete surfaced, hardstand adjoins item 12. Between items 12 and 13 are three unidentified objects with very irregular configurations.

A gable-roofed building (item 13) measures 30 by 20 feet and is on one side of a concrete apron. On the other side of the apron is a gable-roofed building (item 14), which is 50 feet long and 40 feet wide. A graded, but not concrete-surfaced, road runs from this building to the rail siding. On either side of this road is a tower similar to those observed for the conveyer/pipeline at building 8.

A flat-roofed structure, 20 by 15 feet (item 15), has a tall vent or stack and is connected by an overhead pipe to the structures on either side (items 14 and 16). A graded but not concrete surfaced apron extends toward building 15, but does not reach it.

A bunkered structure, 60 by 40 feet (item 16), has four entrances on the side toward the rail spur. There are four small aprons serving these entrances, but they have no connections with either the road or the rail line running past the structure. Item 17 is a structure 15 feet square.

25X1D On [redacted] photography of this section, 25X1D [redacted] 25X1D [redacted] two tank cars, three gondola cars, and one boxcar. [redacted] 25X1D [redacted] 25X1D

Approximately 0.5 nm northeast of the operations section is a typical water/waste disposal facility.

Unidentified Facilities

Approximately 0.5 nm west-northwest of the operations section are three gable-roofed buildings so located at the base of a ridge line as to be protected on three sides. Two of these buildings are alike and measure 115 by 40 feet. These two buildings each have ten roof vents. The third building is 90 by 35 feet and has a 20- by 10-foot cupola on the southeast end of the roof. This building is similar to maintenance buildings observed elsewhere at the SCTMTC. A branch of the pipeline under construction leads to it.

Approximately 0.7 nm west-northwest of the Operations Section are four buildings under construction. The construction of these buildings was begun after the [redacted] photography. 25X1D This constitutes the only new construction activity in the Operational Support and Storage Facilities. Walls of three of these buildings were being erected in [redacted] The three buildings measure 70 by 30 feet, 45 by 30 feet, and 140 by 50 feet. No walls had been erected on the fourth building, but the foundations of this building measure 190 by 115 feet. These four buildings under construction and the three buildings to the east-southeast are both served by overhead electric power lines running from the maintenance section. 25X1D

GENERAL RANGEHEAD SUPPORT FACILITIES

General rangehead support facilities for the SCTMTC include the Main Support Base, railroad facilities, a thermal electric power plant, an early warning radar site and meteorological station, and communications facilities. Also described in this section because of their function or location are a rail line into the desert, and a housing area and landing strip approximately 60 nm north-northeast of SSM Launch Complex C.

The facilities within the Main Support Base include those for housing, administration, and storage; numerous motor pools; a possible laboratory facility; maintenance and shop facilities; and utilities.

MAIN SUPPORT BASE

The Main Support Base (Figure 31) at the SCTMTC is located at 40-36N 100-11E, approximately 20 nm south of the SSM launch facilities and approximately 40 nm north-northeast of Shuang-cheng-tzu Airfield. The base is served by a continuation of the rail line north from the airfield and is the southern terminus of the improved road serving the Operational Support and Storage Facilities and the launch facilities. With its abundant housing, administration, storage, and other supporting elements, the Main Support Base and the adjacent railroad station comprise the largest facility at the SCTMTC. 25X1D [redacted] photography revealed approximately 310 permanent buildings and an estimated minimum of 250 temporary construction support structures. The permanent buildings appear to be of masonry construction, but the construction support structures are of less permanent materials.

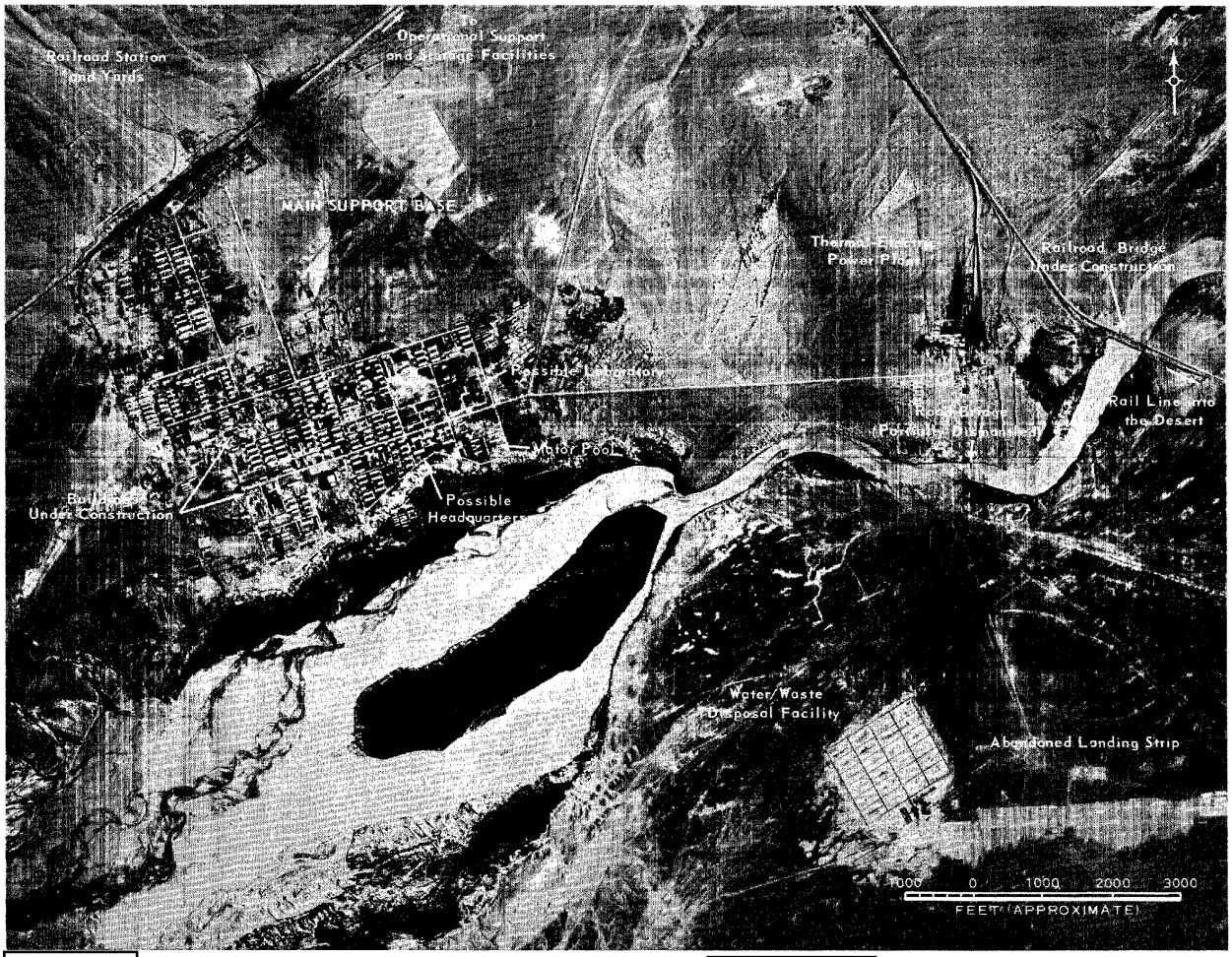
Activity was at a high level in 25X1D [redacted] as new construction and agricultural activity could be noted throughout the Main Support Base. The entire Main Support Base was active in [redacted] 25X1D as practically every vacant plot of land in and adjacent to the completed housing facilities was under cultivation in individual garden plots. Basketball courts were emplaced on almost every available hardstand, at least 20 new buildings were under construction, very large quantities of construction materials were evident in open storage, area clean-up was in progress and numerous vehicles and personnel could be observed. Activity was also noted on earlier oblique photography of [redacted] 25X1D by smoke or steam emanating from the stacks of the six heating plants as well as from numerous other structures. Vehicles could also be observed, both in motion and parked in motor pools.

Housing Facilities

Housing is primarily located in the central portion of the Main Support Base and comprises a total of 154 buildings, including 12 under construction and 18 which are considered to be probable housing. These 154 buildings contain approximately 1,390,000 square feet of gross floor space. All except two of these buildings are gable roofed and all except 14 are two stories.

Seventy-nine of these buildings are barracks type and another 57 are multiple unit or apartment type. Most barracks-type buildings with one entrance measure 75 by 35 feet and with two entrances measure 150 by 35 feet, but none have roof vents or pipes. In addition, there are messhalls interspersed with these types of buildings. The multiple-unit buildings have extended entryways which measure 25 by 5 feet. Most of these buildings with one entrance measure 70 by 35 feet and most with two entrances measure 135 by 35 feet. All of these buildings have roof pipes or vents which may indicate self-contained kit-

25X1



25X1

FIGURE 31. MAIN SUPPORT BASE,

25X1D

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chens. Also, apartment-type divider walls are observed in buildings of this type which are still under construction.

The probable housing consists of a total of 18 buildings. Thirteen of these are gable roofed, single story, modified H-shaped buildings, each one of which is similar to one in the SSM Housing and Support Area, one in the SAM Housing and Support Area, and two in the Housing and Administration Section of the SSM-SAM Assembly and Checkout Complex. There is also a large one-story building with seven wings at the permanent motor pool and four other two-story buildings, two of which are hip roofed, near the possible headquarters and the possible laboratory that are probable housing.

Associated with housing, especially the barracks-type buildings, are 17 messhalls. These messhalls are identical with others observed throughout the Missile Test Center. They are of three different types, all characterized by two large vents on one side of one end of the rectangular buildings or on the stem of the T or on the crossbar of the H-shaped buildings. One type is a gable-roofed, one-story rectangular building measuring 115 by 35 feet. The second type is a gable roofed single story T-shaped building with the crossbar measuring 110 by 35 feet and with the stem of 45 by 35 feet. The third type is a H-shaped building with legs measuring 110 by 35 feet and a crossbar 90 by 35 feet. These H-shaped buildings are really two T-shaped buildings constructed stem to stem. Eight other possible service buildings may also be associated with the housing facilities.

Administration Facilities

Administration can be ascribed as a function to at least 33 buildings of various configurations in the Main Support Base.

One block of five buildings, adjacent to and just west of the permanent motor pool, is a possible headquarters area. These buildings are two to five stories in height and are connected by corridors to form one contiguous structure.

A multistory, flat-roofed building with seven wings located in the southwest portion of the Main Support Base is another type of administration building. Although it appeared essentially complete on [redacted] photography, clean-up work in the immediate area was still in progress. 25X1D

Another group of five buildings near the center of the Main Support Base probably comprises a cultural center and includes a large auditorium/theater.

Ten other buildings in the western portion of the Main Support Base, seven of which were still under construction in [redacted] are felt to be administration-type. Included in this group are a large H-shaped and a large C-shaped building. In addition, other buildings in the Main Support Base may also serve at least a partial administration function. 25X1D

Storage Facilities

Approximately 336,000 square feet of gross floor space of permanent storage is provided in 102 permanent storage buildings, including 24 buildings at the railroad station. This figure excludes temporary storage associated with construction activity, which comprises at least 50 buildings and extensive open storage near the railroad station. Almost all available space in the vicinity of the railroad station is used for open storage. In addition, there are other open storage areas associated with the construction support facilities surrounding the Main Support Base.

A rail offloading facility was also visible and active on [redacted] photography in this Main Support Base area and two cranes were observed in the process of offloading materials. 25X1D

Motor Pools

Ten motor pools can be identified in [redacted] 25X1D
[redacted] photography. In nine of these, the vehicles 25X1D

are parked in the open. These nine motor pools appear to be associated with construction activities. The tenth is more permanent. It contains vehicle sheds, storage buildings, a messhall, and a possible barracks building. It is located adjacent to the Possible Laboratory Facility and the Possible Headquarters Area, at the southern terminus of the main access road to the Operational Support and Storage Facilities, and to the SSM and SAM Launch Facilities. The vehicles in these motor pools and others observed in motion in the Main Support Base give a total count of at least 180 vehicles on [redacted] photography. 25X1D

Possible Laboratory Facilities

A building complex, on the east side of the Main Support Base, north of the permanent motor pool and north-east of the possible headquarters area may function as a laboratory facility.

The building complex consists of eight principal structures joined together by one- and two-story passageways and structures to form one U-shaped building. The principal elements are a central one-story monitor-roofed structure, three three-story wings on the east joined by a two-story "corridor" approximately [redacted] wide, and four three-story wings on the west joined by a one-story passageway. This complex is characterized by large vents on the roofs of all the wings, and is served by driveways, walkways, and a parking area. 25X1D

Maintenance and Shop Facilities

Approximately 157,000 square feet of gross floor space of maintenance and shop facilities is provided by two large monitor-roofed buildings and 13 smaller buildings, including one building at least 40 feet high. The two large shop buildings are located in the northwest portion of the Main Support Base. One of these was formerly rail entered and contains 34,000 square feet and the other contains 56,000 square feet. The other smaller buildings vary in gross floor space from 1,000 to 9,000 square feet.

Utilities

The utilities at the Main Support Base include water supply, heating, and water/waste disposal facilities.

The Main Support Base water supply facilities include two buried water tanks and an adjacent pump or valve house, located just east of the Main Support Base and a water tower located in the western portion of the Main Support Base. Another possible water tower is under construction.

Heating in the Main Support Base is provided by six dispersed coal-fired heating plants. Each plant has an adjacent stack. Open utility ditches led from these plants to the buildings under construction on [redacted] photography. 25X1D

Across the river, to the south, adjacent to the abandoned landing strip is a large water/waste disposal facility which is connected to the Main Support Base by a buried pipeline. This water/waste disposal facility consists of four earth-banked probable digestors, a possible fixed trickler filtration unit and a large field of sludge beds or settling basins. Effluent from this field can be seen draining off to the river on the [redacted] photography. 25X1D

Railroad Facilities

The railroad facilities at the Main Support Base consist of a passenger station, storage buildings and open storage areas, a railroad repair and maintenance facility, and a railyard containing six through sidings approximately 3,000 feet long which are controlled by a switch house at either end. There is also an adjacent railroad turning wye which encloses the railroad

repair and maintenance facility consisting of three rail spurs, and a locomotive repair and maintenance building.

Within the Main Support Base, there are two additional rail spurs. One spur formerly entered one of the large maintenance and shop buildings, but now terminates at a rail offloading point which 25X1D was active on [redacted] photography. The other, to the west, appears to have been laid for construction support and contained hopper cars 25X1D filled with building materials on [redacted] photography.

The passenger station consists of a station house, 110 by 45 feet, with a passenger platform, 170 by 60 feet, on the rail side and a vehicle parking hardstand to the south which connects with the road network in the Main Support Base. 25X1D In [redacted] a basketball court was emplaced on a portion of the hardstand and a 13-car train, including three passenger cars, was stopped at the passenger station.

A total of 375 pieces of railroad rolling stock were located in the Main Support Base area 25X1D on [redacted] photography. These can be divided as following:

A total of 232 railroad locomotives and cars were located in the railroad yard. This total included 6 steam locomotives, one possible diesel locomotive, 2 cabooses, 6 passenger cars, 43 boxcars, 50 probable boxcars, 24 tank cars, 6 probable tank cars, 60 hopper cars, 14 probable hopper cars, 8 gondola cars, 3 flatcars, 2 probable flatcars, and 7 unidentified cars. The hopper cars contained black material, probably coal, and white material, probably building materials. The western construction support rail spur in the Main Support Base contained four hopper cars, probably loaded with building material.

The rail sidings near the Thermal Electric Power Plant and the bridge under construction contained 100 pieces of rolling stock including one possible diesel locomotive, 8 tank cars, 4 boxcars, 43 hopper cars, 3 gondola cars, 38 flatcars, and 3 unidentified cars. Most of the hopper cars were loaded with coal and the flatcars contained 18 bridge sections.

Approximately one nm beyond the railroad station, toward the Operational Support and Storage Facilities, a short construction support spur is noted. This branches to the north and curves behind a small hill mass. On [redacted] 25X1D photography, approximately 45 construction support housing structures were nearby and numerous piles of stores were located at the terminus. There were also 43 hopper cars on this spur in [redacted] No change, except the 43 25X1D hopper cars, could be noted on the [redacted] photography when compared to the oblique photography 25X1D of [redacted] 25X1D

In [redacted] the Main Support Base area 25X1D contained 186 pieces of rolling stock including 34 boxcars, 149 hopper/gondola cars, and 3 steam locomotives in the railroad repair and maintenance facility.

Thermal Electric Power Plant

The Thermal Electric Power Plant, located approximately 1.5 nm east of the Main Support Base provides electric power to the entire SCTMTC, including the airfield. This coal-fired plant has a 210- by 125-foot main building containing a boilerhouse which measures 100 by 80 feet and a generator hall which measures 80 by 60 feet and an adjacent stack, a coal conveyer, and two cooling towers with an outside base diameter of 95 feet and an approximate height of 140 feet. Steam was seen emanating from one of these towers on [redacted] photography. The adjacent, fence-enclosed substation measures 150 by 140 feet and has at least four transmission lines leaving it. 25X1D

The power plant is served by a rail spur from the rail line heading into the desert. This

spur branches to serve two coal unloading ramps. There were 40 hopper cars on one of these branches on the [redacted] photography. Also along one of these branches is a storage area containing four buildings and a fenced open storage yard.

Just south of the spur to the Thermal Electric Power Plant are two more spurs, one abandoned with the rail removed, to two borrow pits. On the active spur in [redacted] there were nine railroad cars including three boxcars. Near the active borrow pit on [redacted] photography were 25 construction support housing structures.

Just south of the main building in the Thermal Electric Power Plant is a 85- by 35-foot, gable-roofed messhall; a gable-roofed 80- by 30-foot vehicle shed; a gable-roofed, single-story possible barracks-type building which measures 80 by 30 feet, and six small buildings of unidentified type. There was a vehicle on the hardstand in front of the vehicle shed on [redacted] photography and a basketball court with backboards was located just to the rear of the vehicle shed.

South of the road to the Thermal Electric Power Plant from the Main Support Base are 10 single story, gable-roofed, probable storage buildings, each one of which measures 155 by 25 feet and contains 3,875 square feet of gross floor space. Each of these buildings has eight probable vents on the roof. There are also four, single-story, gable-roofed buildings which measure 30 by 25 feet located with the 10 probable storage buildings.

Just to the south, a road bridge which was serving the abandoned airfield, the water/waste disposal facility, the Early Warning Radar Site No 1, and Meteorological Station No 2 in [redacted] was being dismantled in [redacted] In [redacted] trackage scars in the riverbed and on the banks indicated that fording had taken place.

Early Warning Radar Site No 1 and Meteorological Station No 2

Early Warning Radar Site No 1 and Meteorological Station No 2 (Figure 32) are located at 40-55N 100-17E, approximately 4 nm southeast of the Main Support Base. The area is served by a graded and rolled, natural-surfaced road which on [redacted] photography had not been concrete surfaced.

Early Warning Radar Site No 1

Early Warning Radar Site No 1, which appears to contain the same facilities as Early Warning Radar Site No 2, located approximately 3.5 nm southeast of the Shuang-cheng-tzu Airfield, consists of a raised radar mound with a TOKEN-type radar, two adjacent small flat-roofed storage structures, and a fence-secured housing and support section. The housing and support section contains ten buildings, a vehicle grease rack, and a basketball court. The ten buildings include a two-story, hip-roofed probable personnel building, a gable-roofed probable messhall, a flat-roofed probable vehicle storage shed, two security gatehouses, and five flat-roofed unidentified structures of various sizes.

Meteorological Station No 2

The separately fenced Meteorological Station No 2 is similar to Meteorological Station No 1 at the SSM Housing and Support Area. Meteorological Station No 2 also contains a rolled and graded loop road, a probable personnel building, two probable storage buildings, a small support building, a bunker, an earth-mounded tank, a central fence-enclosed area containing several small sensors, and a possible balloon launch platform. On [redacted] photography, basketball backboards were positioned on the road on either side of this platform.

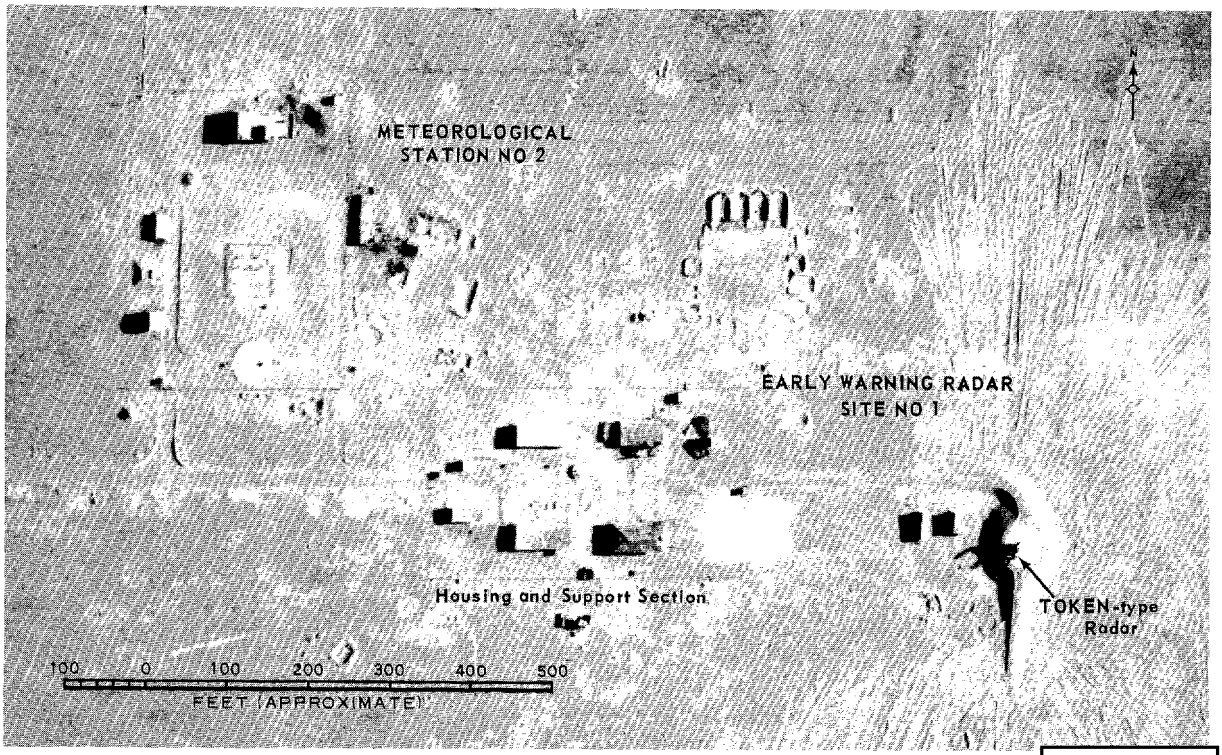


FIGURE 32. EARLY WARNING RADAR SITE NO 1 AND METEOROLOGICAL STATION NO 2

25X1
25X1D

COMMUNICATIONS FACILITIES

Communications facilities at the SCTMTC consist of high-frequency transmitting and receiving communications sites at Shuang-cheng-tzu Airfield and high-frequency transmitting and receiving communications sites in the rangehead area.

All four sites contain dipole antennas, all except the airfield receiving site contain rhombic antennas and all except the rangehead transmitting site also contain traveling-wave "vee" antennas. The rhombic antennas are standard Soviet design, conforming to the theory of G.S. Ajzenberg. 7/ The single end-pole rhombic antennas are usually designated by the letter RG and the double end-pole antennas (double Rhombic Antennas) by the letters RGD.

Transmitting Site

The transmitting site (Figure 33) in the rangehead area is located at 41-06N 100-17E approximately 2 nm north-northeast of the Revetted Storage and Handling Area and approximately 7 nm south of the SSM Launch Complex A, in the area of an abandoned landing strip. This northwest-southeast, natural-surfaced landing strip with two parking aprons is presently unserviceable because it is crossed by an overhead electric power transmission line and the main access road leading to the SSM Launch Complexes. The transmitting site consists of one double end-pole day rhombic antenna (item 1), two single end-pole day rhombic antennas (items 2 and 3), one double end-pole night antenna (item 1a), one single end-pole night rhombic antenna (item 2a) and 16 dipole antennas (items 4 through

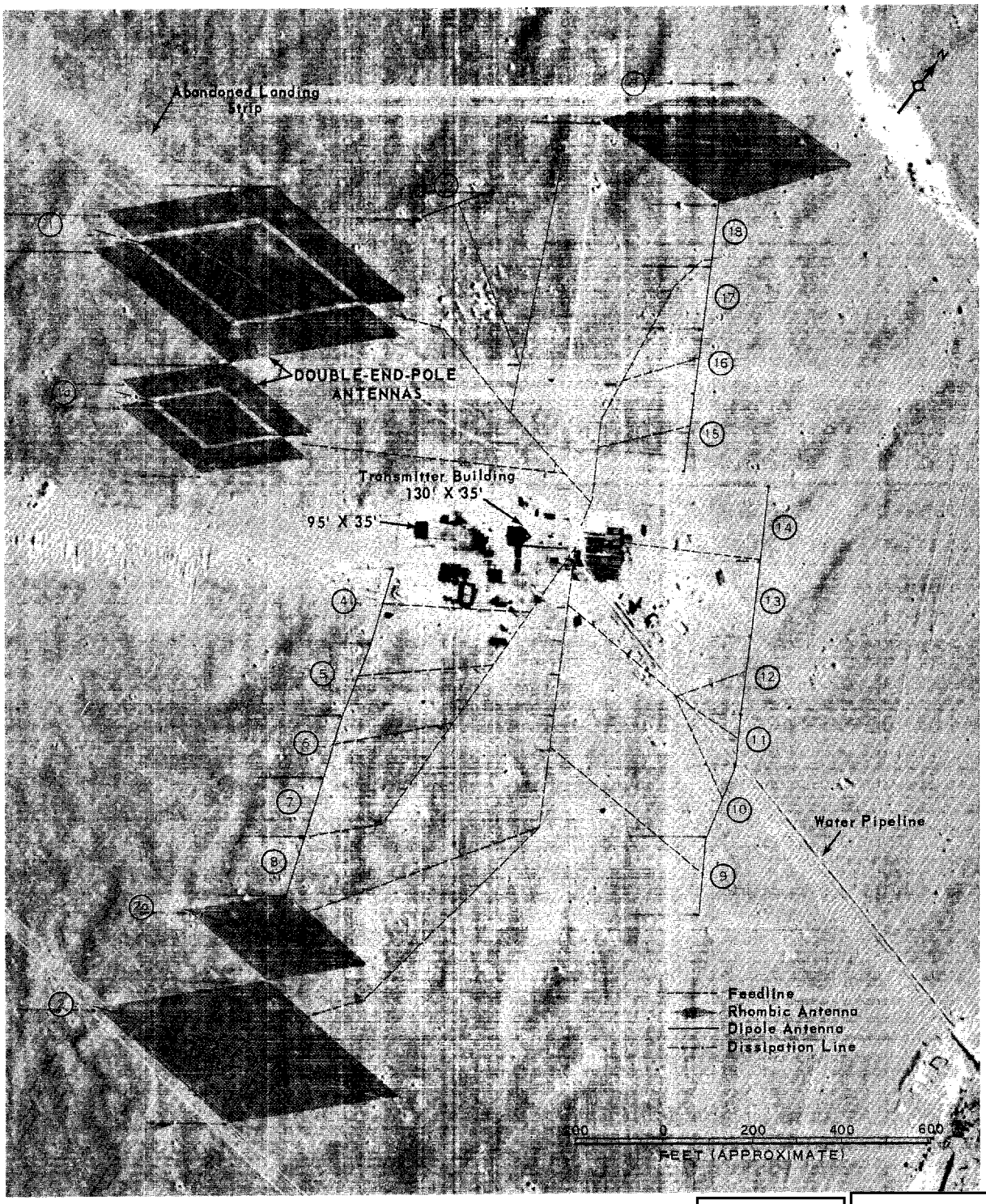


FIGURE 33. RANGEHEAD TRANSMITTING COMMUNICATIONS SITE

Table 1. Rangehead Transmitting Communications Site Rhombic Antennas
(Antenna Numbers are keyed to Figure 33)

Antenna Number	Azimuth (Degrees)	Major Axis (Feet)	Minor Axis (Feet)	End Pole HT (Feet)	Length 1 Side (Feet)	Tilt Angle (½ Side Angle)	Optimum Design Frequency (Megacycles)
1		705	340	100	390		10.1 mcs
1a		420	205	55			16.9 mcs
2*		700	340	100	390		10.1 mcs
2a*		420	205	55			16.9 mcs
3		570	275	75	320		12.3 mcs

*These rhombic antennas have a central switching facility to allow transmission from either end of the antenna. Except for these two rhombic antennas, the first azimuth listed is the primary transmitting azimuth.

25X1D 25X1D25X1D 25X1D

Table 2. Rangehead Transmitting Communications Site Dipole Antennas
(Antenna Numbers are keyed to Figure 33)

Antenna Number	Azimuth (Degrees)	Antenna Length (Pole Separation) (Feet)	Pole Height (Feet)
4		180	45
5		180	45
6			45
7*		145	75
8*		145	75
9		180	75
10		180	45
11			45
12		180	45
13*		170	100
14*		170	100
15		180	45
16		150	45
17*		145	75
18*		145	75
19		180	75

*Possible End Fed Arrays.

25X1D 25X1D25X1D

19). Within a centrally located, fenced control area is a hip-roofed transmitter building which measures 130 by 35 feet and several small support structures. Just outside the fence is a probable personnel building measuring 95 by 35 feet. The area is road served and has a water pipeline to a pumphouse near the O-chi-na Ho. This pipeline runs to the transmitter building, passing an area in the southeast corner of the fenced enclosure which may be a water storage facility under construction.

Receiving Site

The rangehead receiving site (Figure 34)is located at 40-53N 100-09E, approximately 4.5 nm southwest of the Main Support Base and 14 nm south-southwest of the transmitting site. This site is adjacent to a water supply dam on a channel of the O-chi-na Ho. The site contains four single end-pole day rhombic antennas (items 1-4), four single end-pole night rhombic antennas (items 1a, 2a, 3a, and 4a), two "vee" antennas (items 5 and 6), four dipole antennas (items

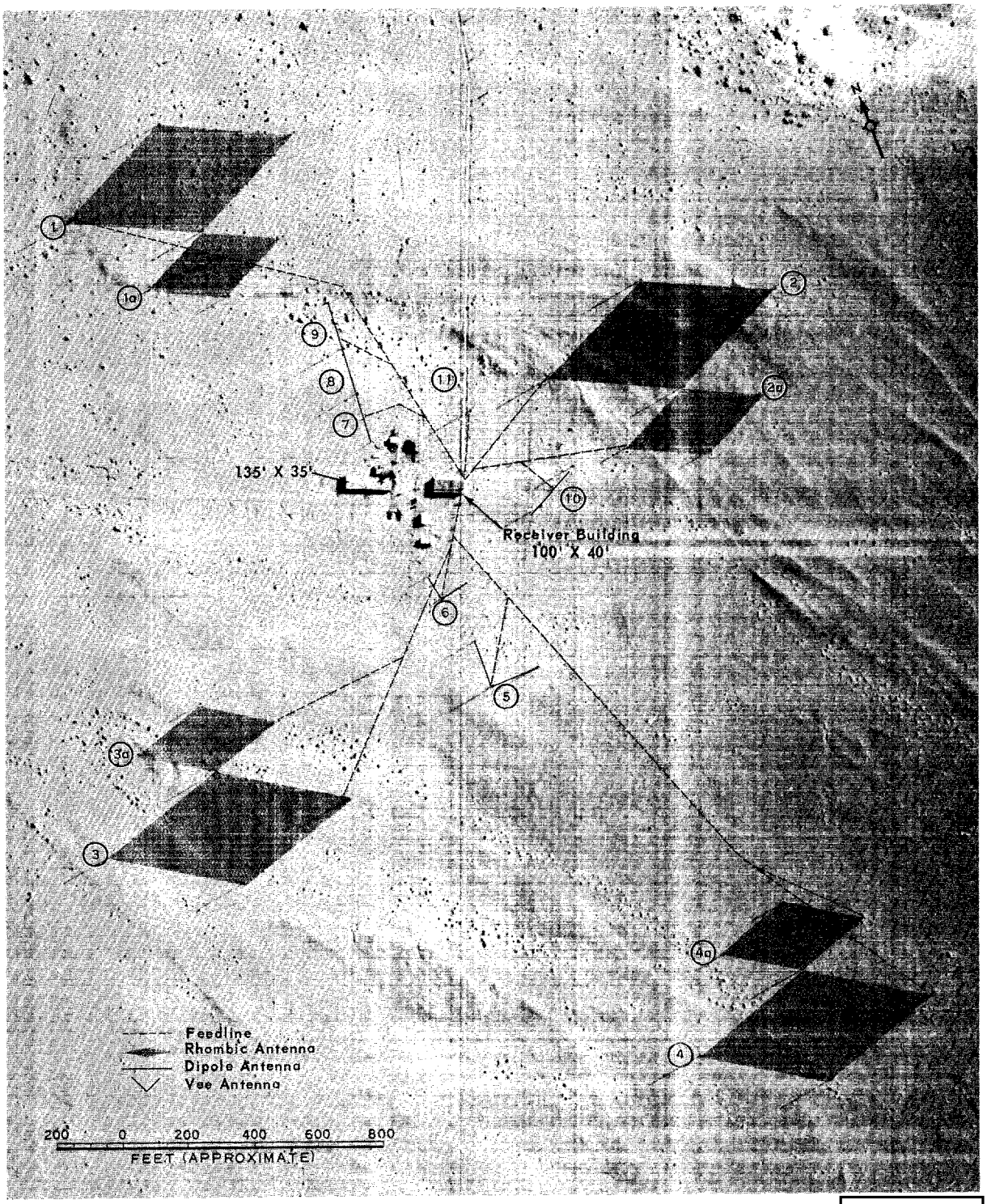


FIGURE 34. RANGEHEAD RECEIVING COMMUNICATIONS SITE [redacted] 25X1

25X1D

Table 3. Rangehead Receiving Communications Site Rhombic Antennas
(Antenna Numbers are keyed to Figure 34)

Antenna Number	Azimuths (Degrees)	Major Axis (Feet)	Minor Axis (Feet)	End Pole HT (Feet)	Length 1 Side (Feet)	Tilt Angle (½ Side Angle)	Optimum Design Frequency (Megacycles)*
1		715			395		9.9-11.2 mcs
1a		425			235		17.2-19.3 mcs
2		715			395		9.9-11.2 mcs
2a		425			235		17.2-19.3 mcs
3		715			395		9.9-11.2 mcs
3a		425			235		17.2-19.3 mcs
4		715			395		9.9-11.2 mcs
4a		425			235		17.2-19.2 mcs

*Lower frequency was derived from a formula using the length of one side. The higher frequency figure was derived by using the end-pole height.

25X1D 25X1D 25X1D

Table 4. Rangehead Receiving Communications Site Vee Antennas
(Antenna Numbers are keyed to Figure 34)

Antenna Number	Azimuths (Degrees)	Length 1 Leg (Feet)	Apex Angle	Pole Height (Feet)
5		150	90°	75
6		80	90°	45

25X1D

Table 5. Rangehead Receiving Communications Site Dipole Antennas
(Antenna Numbers are keyed to Figure 34)

Antenna Number	Azimuths (Degrees)	Antenna Length (Pole Separation) (Feet)	Pole Height (Feet)
7		150	40
8*		195	75
9*		195	75
10		150	65

*Possible End Fed Arrays.

25X1D

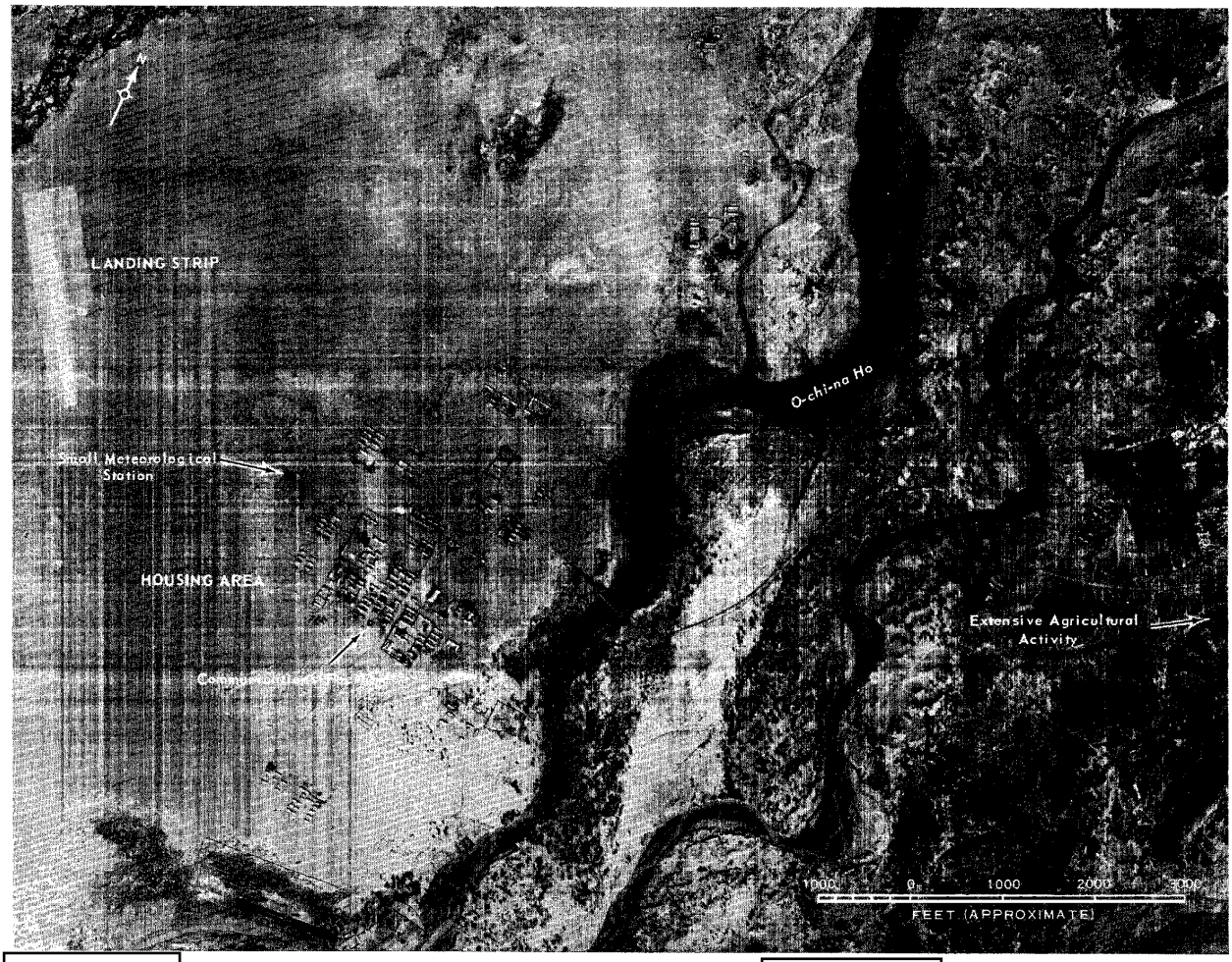
7-10), and a stick mast (item 11) 75-feet high. The central fence-secured control area is road served and contains a 100- by 40-foot flat-roofed receiver building and two small support buildings. Just outside the fence is a gable-roofed personnel building measuring 135 by 35 feet, two small support buildings, and a basketball court.

Tables 1-5 present technical data on the antennas in the transmitting and receiving communications sites at the rangehead area.

RAIL LINE INTO THE DESERT

An operational rail line extends approximately 50 nm southeast from the Main Support Base. Just north of the Main Support Base, it branches from the rail line serving the Operational Support and Storage Facilities, bypasses the Thermal Electric Power Plant and continues toward the O-chi-na Ho. At the power plant, there are two through sidings and two spurs to

25X1



25X1

FIGURE 35. HOUSING AREA AND LANDING STRIP

25X1D

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the power plant area, which are described under the Thermal Electric Power Plant section. On 25X1D [redacted] photography, there was a temporary rail bridge over the O-chi-na Ho and construction work was underway on a permanent 25X1D bridge. On the [redacted] photography, all nine footings for the permanent bridge appeared to be constructed. At least five of these footings 25X1D were constructed between [redacted] 25X1D On [redacted] photography, two cranes were observed in the riverbed area and 18 bridge sections on flatcars were located on an adjacent 25X1D siding. Photography of [redacted] reveals that the permanent bridge is apparently completed.

The rail line continues east-southeast from the river for approximately 22 nm, turns south-southeast and continues an additional 22 nm past a construction camp and turning wye, through a rail yard with five or six sidings, and then runs east-southeast for approximately 5 nm to a terminus where there are two track sidings, a final turning wye, three short hooking rail spurs, and approximately 20 construction support buildings. The final turning wye and the three short hooking rail spurs were probably 25X1D added between [redacted] It is unlikely that the rail will continue further to the southeast, because there is an extensive area of sand dunes just south of the terminus. However, additional short lateral spurs to support future operations or facilities are a distinct possibility. An overhead electric power/telephone line can be observed along the rail line for approximately 12 nm from the thermal-electric power plant. Obliquity precludes further identification of this power/telephone line.

HOUSING AREA AND LANDING STRIP

A housing area, an agricultural commune-type settlement possibly also containing border-security military personnel, and a landing strip (Figure 35) are located approximately 60 nm north-northeast of SSM Launch Complex C, along the western edge of the multichannel watercourse of the O-chi-na Ho. The area is connected to the SCTMTC by an unimproved trail and some vehicle traffic scars. The landing strip is hard surfaced, although not with the type of good concrete present at the Shuang-cheng-tzu Airfield. The runway is approximately 1,850 feet long and 140 feet wide. Surrounding cleared and graded areas give a total length of approximately 2,450 feet with a minimum width of approximately 200 feet. There is one small hard-surfaced hardstand, but there are no other facilities associated with the landing strip.

On photography of [redacted] the housing 25X1D area contained approximately 215 buildings, including one large administration/auditorium-type, and other housing, administration, and storage-type buildings. Secured open storage areas, a secured area containing a small meteorological station with two stick masts, and at least three basketball courts were also observed in the area. Electric power/light poles can be observed throughout the area and a small communications facility with three dipole antennas in a U-shaped pattern was observed on the [redacted] 25X1D [redacted] photography. In addition, several yurt-type, 25X1D native tents can be identified in the area. To the east, in the area of the riverbeds, there is very extensive agricultural activity with several additional groups of storage buildings. An overhead power/communications line extends north from the SCTMTC toward this area, but lack of adequate photography precludes identification of this line beyond a small military checkpoint at an old walled settlement approximately 15 nm north-northeast of SSM Launch Complex C.

SHUANG-CHENG-TZU AIRFIELD

Shuang-cheng-tzu Airfield (Figure 36) is located at 40-17N 99-46E approximately 40 nm south-southeast of the SCTMTC Main Support Base. It is served by a rail line which branches from the Lan-chou/Wu-lu-mu-chi rail line, approximately 50 nm to the south. The airfield has normal military airfield supporting facilities and additional facilities associated with air-to-surface missile (ASM) systems and probably associated with air-to-air missile (AAM) systems. The many similarities between this airfield and the Vladimirovka Airfield, KY/Vlad MTC, are evidence of Soviet assistance in the designing of this complex. The airfield and an adjacent portion of the rail line were the only identifiable parts of the SCTMTC on extremely oblique photography of [redacted] Although the airfield was observed to be essentially complete and operational on photography of [redacted] work was still in progress on some of the support facilities in [redacted] Support facilities present include control and operations, rail-served POL and M-type storage areas, airfield housing, communications sites, airborne missile facilities, an associated L instrumentation pattern, and Early Warning Radar Site No 2.

25X1D
25X1D
25X1D

The airfield has a 13,525 by 275 foot concrete runway, oriented northeast-southwest, which is the longest hard-surfaced runway known to exist in Communist China. A parking apron 9,125 feet long has a center portion 7,000 by 230 feet. There is a widened portion, 900 by 300 feet, at the southwest end, and two portions, measuring 730 by 280 feet and 485 by 180 feet, at the northeast end. Beyond the northeast end of the parking apron, there are nine parking stands, 60 feet wide. Five link taxiways connect the runway with the supporting elements. Widths of these taxiways vary from 110 to 50 feet. There are two warmup aprons, one at each end of the field, and an alert apron at the southwest end. Also located at the southwest end of the field, southeast of the runway, is a firing-in butt with a target holder and two hardstands. The airfield has an instrument landing system (ILS) with inner and outer beacons at each end of the runway at distances of 3,100 and 19,800 feet from the end of the runway. There are also lights and visual markers on the approaches. On the northeast approach on [redacted] one BEAGLE (IL-28) was observed landing. Aircraft present on the field on [redacted] photography include two BEAGLE, one COLT, and five FRESCO-FAGOT. The aircraft count on [redacted] photographic coverage was 3 BEAGLE, and one COLT.

25X1D
25X1D
25X1D

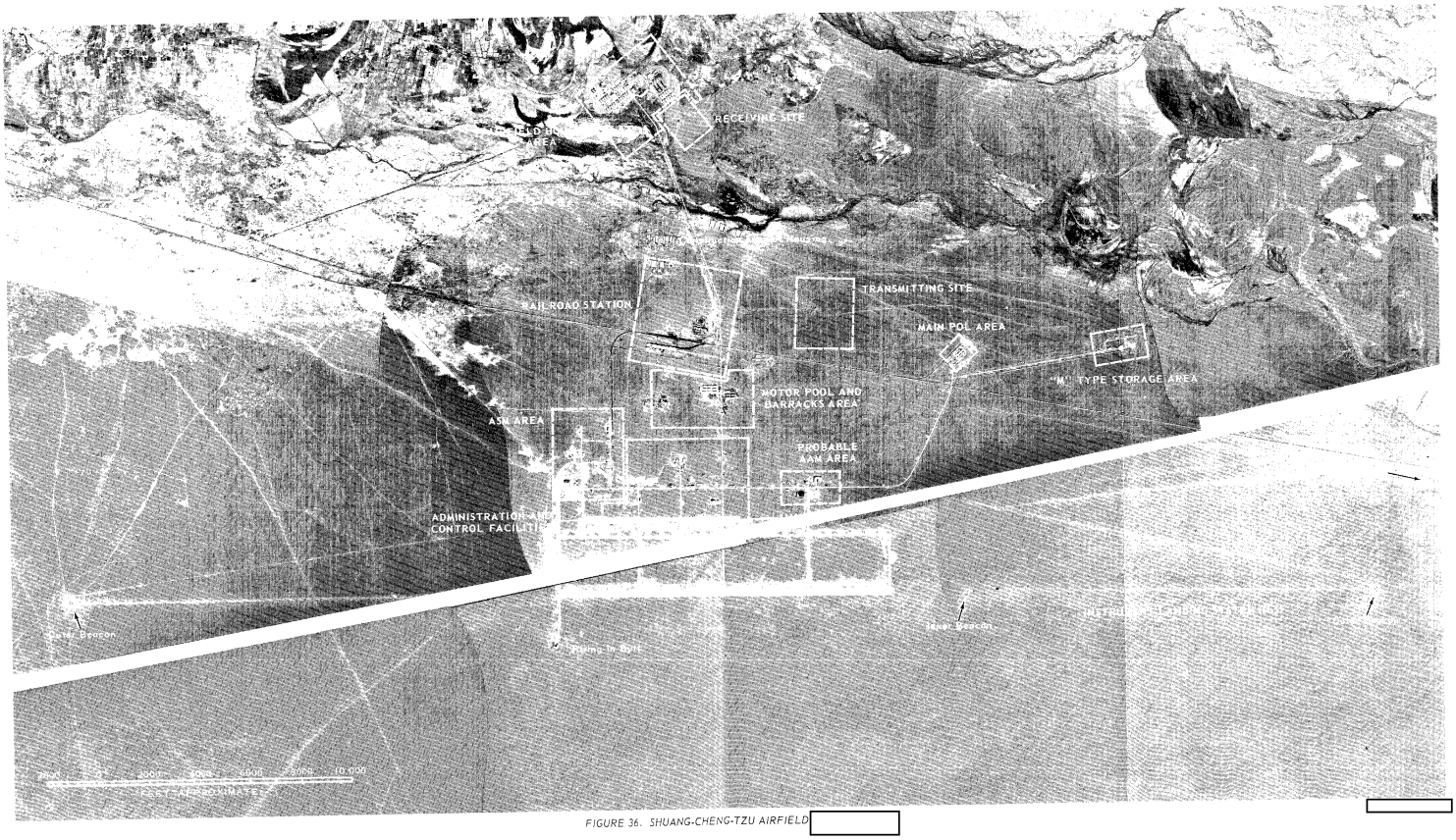
AIRFIELD CONTROL AND OPERATIONS FACILITIES

Airfield Control and Operations Facilities are located on the northwest side of the airfield and include administration and control facilities, a motor pool and associated barracks area, a railroad station, a POL storage area, and a water supply facility. These facilities are all near the road from the airfield housing area to the airfield. The majority of the facilities in this area showed construction activity as well as area improvement and clean up between [redacted] photographic coverages.

25X1D
25X1D

Administration and Control Facilities

The Administration and Control Facilities (Figure 37) are primarily located along the main service road which parallels the airfield runway, runs from the ASM area through the Administration and Control Facilities and the probable AAM area and connects them with the main POL and



25X1

FIGURE 36. SHUANG-CHENG-TZU AIRFIELD

25X1D

25X1

M-type storage areas. The structures in the Administration and Control Facilities are described below (item numbers are keyed to Figure 37).

Item	Structures
1.	Control tower, 110 by 35 feet, flat roof, with an enclosed observation booth on top which measures 50 by 30 feet, and with a small vehicle parking hardstand in front. Two vertical stick masts and a small fenced weather station are located just west of the control tower.
2.	Administration/personnel building, 90 by 30 feet, single story with a modified gable roof and a small vehicle parking hardstand in front.
3.	Unidentified structure, 20 by 15 feet with a 165- by 35-foot vehicle parking hardstand in front, same as item 11 described below.
4.	Unidentified building, 50 by 40 feet, gable roof, same as item 10 described below.
5.	Unidentified building, 80 by 40 feet, gable roof, same as item 9 described below.
6.	Probable storage building, 50 by 30 feet, gable roof, with a small hardstand in front.
7.	Steam/heating plant, 50 by 20 feet, with three stacks on its gable roof. This plant is connected by foot- or vehicle-track scarring to the water supply facility.
8.	Barracks building, 120 by 40 feet, two story, gable roof, with a basketball court on the vehicle parking hardstand in front.
9.	Unidentified building, 80 by 40 feet, gable roof, same as item 5 above.

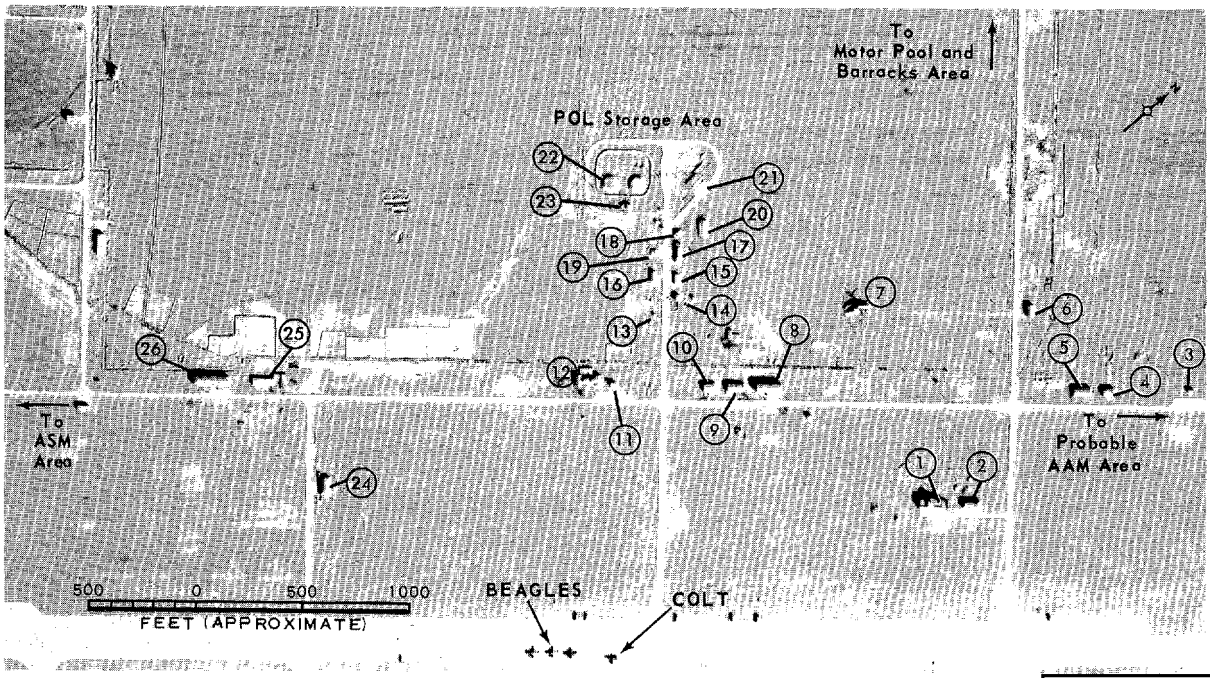


FIGURE 37. ADMINISTRATION AND CONTROL FACILITIES AT AIRFIELD [redacted] 25X1

10. Unidentified building, 50 by 40 feet, gable roof, same as item 4 above.
11. Unidentified structure, 20 by 15 feet, with a 165- by 35-foot vehicle parking hardstand in front, same as item 3 above.
12. Probable messhall, H-shaped, with legs 60 by 30 feet and a crossbar 65 by 30 feet.

In the northwest portion of the Control and Operations Facilities is a fence-secured POL storage area which is connected by a pipeline to the rail-served main POL storage area. This POL storage area, in the Control and Operations Facilities, is connected by buried pipelines to 18 fuel loading points on the west end of the parking apron. This POL storage area contains two road loops, the eastern portion of which is concrete surfaced and the western portion of which is only rolled and graded. The common center road between the loops is widened and contains three truck loading/unloading columns, the center one of which is probably a double column. This area showed considerable cleanup work between [redacted] photographic coverages. The fenced POL storage area contains the following structures:

25X1D

Item	Structures
13.	Security gatehouse, approximately 10 by 10 feet, gable roof.
14.	Unidentified building, 20 by 20 feet, gable roof.
15.	Probable storage shed, 50 by 20 feet, flat roof with a 50- by 20-foot hardstand in front.
16.	Support building, 50 by 20 feet, gable roof.
17.	Unidentified flat-roofed building, 100 by 25 feet, with a two-story, 50- by 25-foot, gable-roofed center section.
18.	Earth-mounded bunker, pyramidal-shaped, with a 45- by 45-foot base and a 10- by 10-foot top.
19.	Earth-mounded bunker, 25 by 25 feet, with four vents on top, and has a 50- by 25-foot hardstand along the road.
20.	Unidentified building, 80 by 45 feet, with possible lightning arresters on the gable roof. No roads or trails appear to provide direct service to this building.
21.	Earth-mounded bunker with 10 vents on its 65- by 35-foot top and with a 70- by 30-foot hardstand in front.
22.	Two semiburied tanks each with a top diameter of 65 feet, both enclosed by an earthen firewall.
23.	Pumphouse or valve house, 50 by 20 feet, with a 20- by 20-foot taller portion.

South of the POL storage area are three additional permanent buildings, which are described below.

Item	Structures
24.	Probable personnel building, 90 by 45 feet, one story, hip roof, with a 50- by 40-foot vehicle parking hardstand in front.
25.	Unidentified building, one story, 100 by 35 feet, gable roof.
26.	Probable personnel building, 180 by 50 feet, hip roof, with a 95- by 40-foot vehicle parking hardstand in front.

Also located with the Administration and Control Facilities are two probable construction support facilities and several garden plots.

Motor Pool, Associated Barracks, and Water Supply Facilities

The motor pool and associated barracks area (Figure 38) is located between the Control and Operations Facilities and the railroad station

along the road to the Airfield Housing Area. The water supply facility is located approximately 1,650 feet south-southwest of the motor pool.

Construction may not have been completed in [redacted] as a vehicle parking hardstand in the area had not been concrete surfaced and the motor pool area had not been fenced. Cleanup activity had taken place throughout this area between [redacted] photographic coverages. The structures in the motor pool and the associated barracks area are described below with the item numbers keyed to Figure 38.

25X1D

25X1D

The motor pool area contains a grease rack; ten flat-roofed vehicle storage sheds, four of which measure 165 by 35 feet (item 1) and six of which measure 140 by 30 feet (item 2). The area also contains a coal-fired, gable-roofed 45- by 20-foot steam/heating plant (item 3) with three stacks on top and a gable-roofed 30- by 20-foot, one-story building (item 4) located at the entrance to the motor pool area.

The associated barracks area is just across the road, northeast of the motor pool and contains the following: four two-story barracks, 150 by 45 feet (item 5); a 105- by 50-foot gable-roofed messhall (item 6) with a 60- by 50-foot extension on the northeast end; a gable-roofed heating plant (item 7) which measures 80 by 30 feet with a 20- by 15-foot monitor on top and an adjacent stack. Also contained in this area are a T-shaped, hip-roofed one-story building (item 8) the cross bar of which measures 100 by 35 feet and the stem of which measures 35 by 30 feet; a gable-roofed, one-story support building, 40 by 30 feet (item 9) and a walled electric power substation (item 10) which supplies electric power to the whole airfield complex. This substation is connected by an overhead power line to the Thermal Electric Power Plant. Two basketball courts, several garden plots and scattered construction materials were observed in the area on [redacted] photography.

25X1D

The water supply facility is located approximately 1,650 feet south-southwest of the motor pool. It contains a water tower, a semi-buried circular tank with a top diameter of 55 feet, two

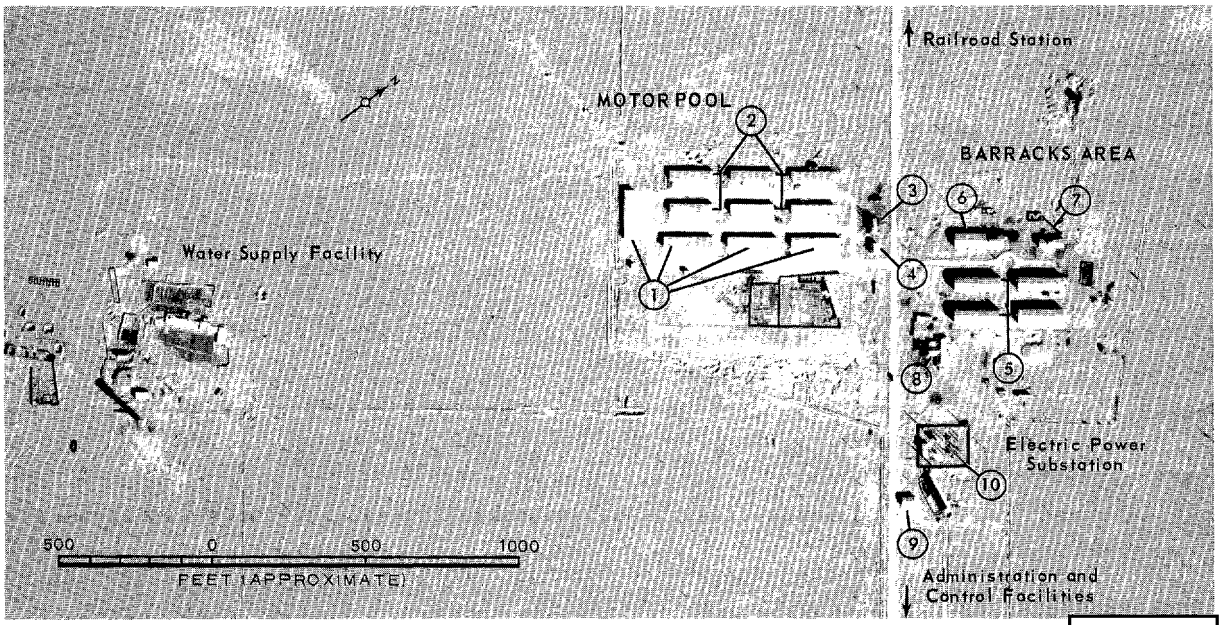


FIGURE 38. MOTOR POOL AND ASSOCIATED BARRACKS AREA AT AIRFIELD [redacted]

25X1

25X1D

probable pumphouses or valve houses and some construction support housing. Walls and foundations of other abandoned construction support structures are also present nearby.

Neither the garden plots associated with this facility or those in the motor pool and adjacent barracks area appeared to be under cultivation on [redacted] photography.

Railroad Station

The railroad station (Figure 39) at the airfield consists of a railroad yard with three through sidings, two spur sidings to offloading and storage areas, and a station house with both a passenger platform and a vehicle parking hardstand. Road beds of former spurs used during construction can be detected leading to the Airfield Housing Area and another to and paralleling the airfield runway. There was still considerable evidence of construction activity in the railroad station area on both [redacted] photography with construction support buildings and piles of construction materials in evidence.

The railroad yard contains three through sidings measuring approximately 2,900 feet in length controlled by small switch houses at either end of the yard. This yard and the spur siding to the ASM offloading and storage area contained 22 hopper/gondola cars, one tank car and one boxcar on [redacted] photography and 156 hopper/gondola cars, one tank car, one boxcar and one flatcar on [redacted] photography.

The station house (item 1 on Figure 39) is a gable-roofed, probably two-story structure, measuring approximately 70 by 35 feet with an extended entrance on the station platform side of the building. To the rear of the building, there is a parking hardstand, on which basketball backboards had been emplaced.

Between the railroad station and the road to the Airfield Housing Area, there is an area of construction activity with two walled open storage areas, and approximately 13 construction support structures. West of this area, there is a concentration of construction support housing, which may have been abandoned by [redacted] as the garden plots no longer appear to be under cultivation, the housing structures appear to be in a state of disrepair, and no activity of any type can be noted.

The rail offloading and storage area shown on Figure 39, contains a 260- by 35-foot rail offloading dock (item 2) and a hardstand with the following nine structures (items 3-11): seven gable-roofed storage sheds; five of which (items 3-7) measure 145 by 45 feet, one (item 8) measures 50 by 45 feet and the other (item 9) measures 100 by 45 feet. There is also a two-story, flat-roofed, 40- by 20-foot building (item 10), with two one-story, 20- by 20-foot wings, and a gable-roofed building (item 11) which measures 65 by 35 feet and has a 35- by 20-foot, flat-roofed extension on the northwest end. The entire rail spur serving this rail offloading and storage area has apparently been used for coal offloading as evidenced by the coal on the ground adjacent to the track. Two vehicles were in motion in this area on [redacted] photography and the whole station area had been "cleaned up" since [redacted] photography.

MAIN POL AND M-TYPE STORAGE AREAS

The rail-served Main POL and M-type Storage Areas are located approximately 1.5 nm north of the northeast end of the runway and are served by spurs from the rail line to the Main Support Base. Both of these areas are of typical Soviet design and both are connected by the concrete main service road to the airfield.

Main POL Area

The Main POL Area (Figure 40) is fence secured and is serviced by a rail spur which branches into two sidings at the fence line.

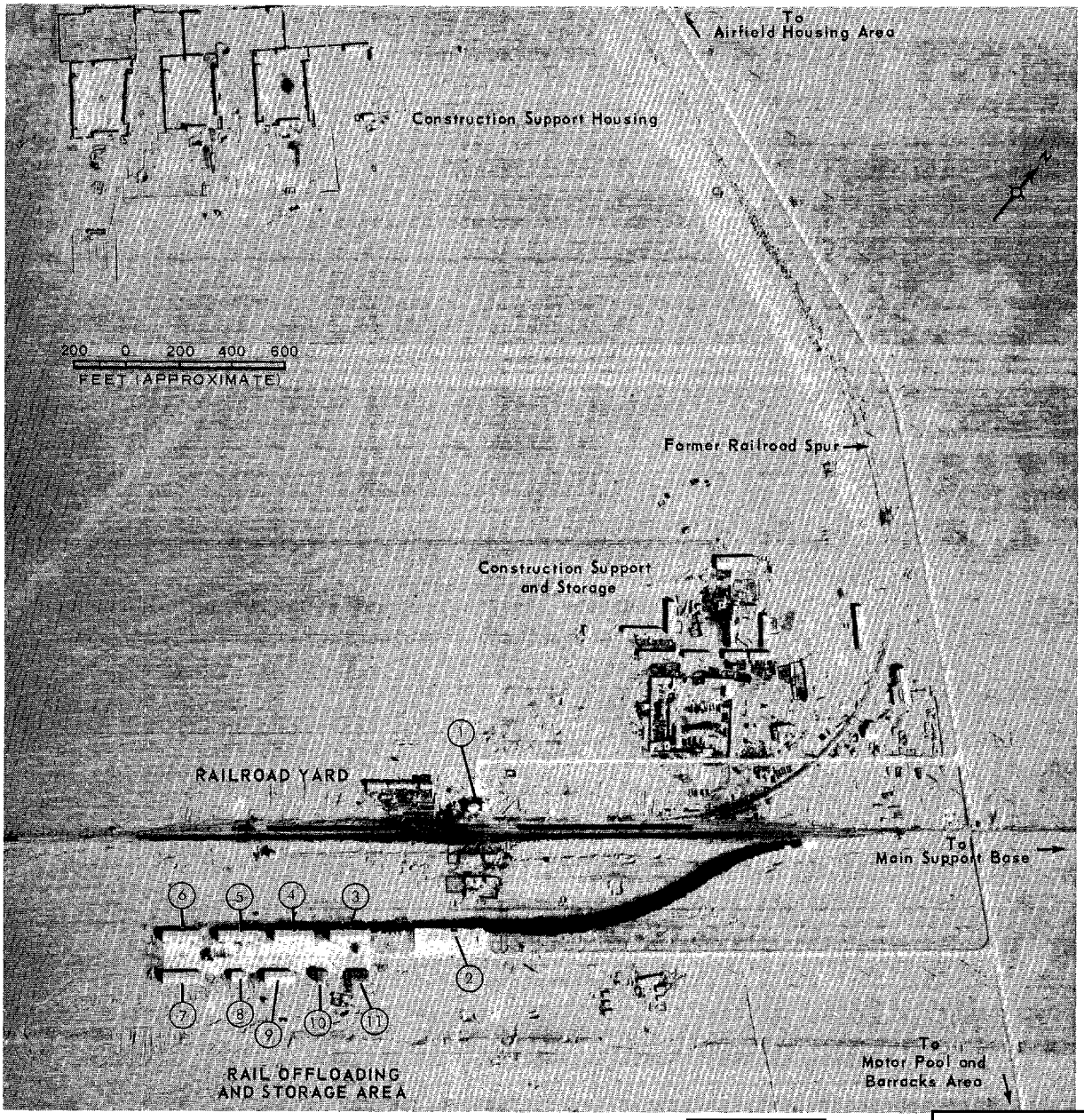
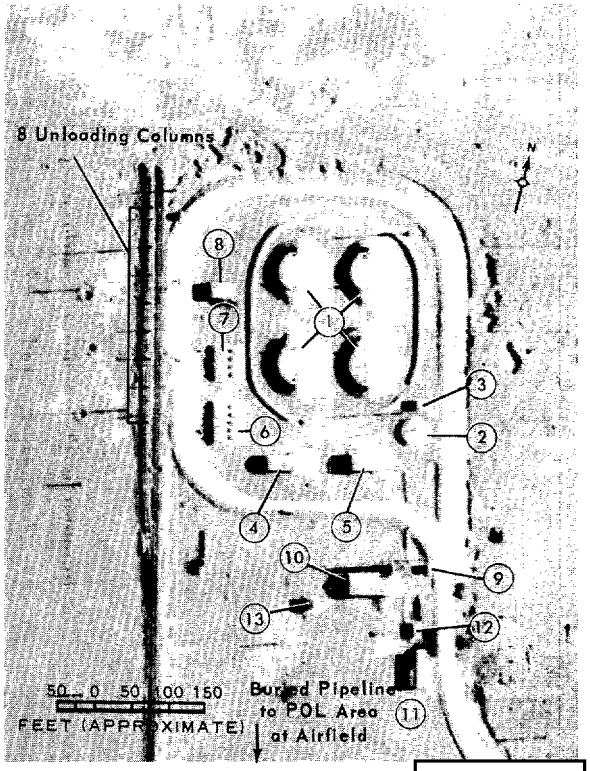


FIGURE 39. RAILROAD STATION AT AIRFIELD [redacted] 25X1

25X1D

Within the fenced area, between the two rail sidings, are eight railroad tank car unloading columns which are 40 feet apart. On the widened portion of the loop road are two probable truck loading points. Also included within the fenced area are the following 11 structures (the item numbers keyed to Figure 40). Four earth-mounded tanks (item 1) have a top diameter of



25X1D

FIGURE 40. MAIN POL AREA AT AIRFIELD

50 feet and are located within an earthen firewall. Just southeast of these four tanks, there is a small earth-mounded tank (item 2) with top diameter of 35 feet and an adjacent 15- by 15-foot, flat-roofed structure (item 3). Two gable-roofed, single-story buildings (items 4 and 5) measure 50 by 20 feet and 35 by 20 feet respectively. There are two earth-mounded bunkers (items 6 and 7) adjacent to the western portion of loop road. Item 6 measures 60 by 30 feet and has five vents on top and item 7 measures 45 by 30 feet and has four vents on top. Just north of these bunkers is a flat-roofed 30- by 20-foot probable pumphouse (item 8).

This Main POL Area is connected by pipeline to a smaller POL storage area in the Airfield Administration and Control Facilities. Just outside the security fence are the following six structures: a small security structure (item 9), located along the road; a 65- by 35-foot heating plant with adjacent stack (item 10); a gable-roofed 50- by 30-foot probable personnel building (item 11). There are also two small flat-roofed structures (items 12 and 13) which measure 20 by 15 feet and 15 by 15 feet respectively.

M-Type Storage Area

The rail and road-served M-Type Storage Area (Figure 41) is similar to those observed at various airfields in the USSR 8/, and is especially similar to the M-type storage area at Limanskoye Airfield, USSR. 8/

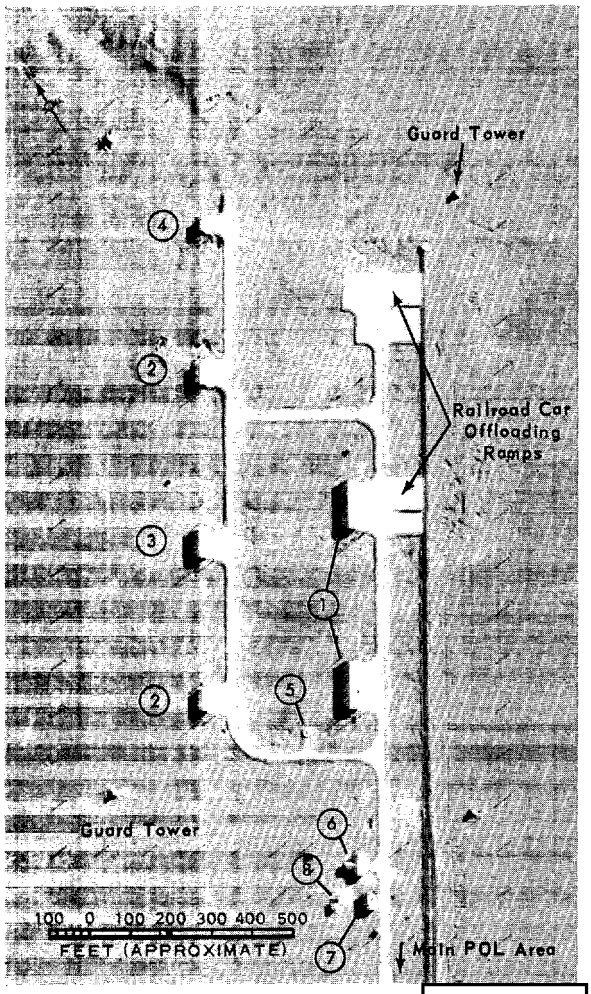


FIGURE 41. AIRFIELD M-TYPE STORAGE AREA

25X1D

25X1D

The Shuang-cheng-tzu Airfield M-Type Storage Area has five guard towers and is surrounded by light poles which are approximately 120 feet apart, but it does not appear to be fenced, although wire may be strung between the light poles. The area contains the following structures with the item numbers keyed to Figure 41: seven concrete hardstands, two of which have railroad offloading ramps; two gable-roofed 120- by 35-foot storage buildings (item 1) with lightning arresters; two gable-roofed, 50- by 30-foot storage buildings (item 2) with lightning arresters; a gable-roofed 65- by 35-foot storage building (item 3) with lightning arresters; and a gable-roofed, 30- by 20-foot storage building (item 4) with lightning arresters. There is also a small semiburied tank (item 5) with a top 20 feet in diameter. This type of semiburied tank is present in most M-type storage areas.

A small area at the entrance to the storage portion contains some small garden plots, one of the five guard towers, a small unidentified structure, a basketball court; a T-shaped, gable-roofed probable personnel building (item 6) with a 55- by 20-foot crossbar and a 20- by 20-stem; a gable-roofed, 50- by 35-foot probable personnel building (item 7); and a flat-roofed, unidentified building measuring 15 by 10 feet (item 8).

The rail spur servicing this area has a siding approximately 900 feet long just outside the storage portion.

AIRFIELD HOUSING AREA

The Airfield Housing Area (Figure 42) is located approximately 4 nm northwest of Shuang-cheng-tzu Airfield. Utilities include electric power, light poles through the area, two heating plants providing central heating and a water supply facility which is separate from the airfield water supply facility. Activity was evident throughout this area between photographic coverages of [redacted] 25X1D

The Airfield Housing Area contains 67 buildings of which 37 are two-story, gable-roofed, quarters types, containing approximately 399,500 square feet of gross floor space.

A motor pool is located in the northwestern portion of the Airfield Housing Area and contains a grease rack, two vehicle sheds (items 9 and 10), a dispatcher's shack (item 11) and concrete surfaced vehicle parking hardstands.

The water supply facility is southwest of the motor pool and consists of two 50-foot in diameter semiburied tanks, a 45- by 20-foot pumphouse or valve house and a water tower.

Cleanup activity, including road paving and ditch backfilling, took place in this area between [redacted] photographic coverages, 25X1D but no new structures were erected during this time. Although basketball courts were visible on both [redacted] photographic 25X1D coverages, no garden plots were in evidence within this housing area as was the case at other SCTMTC facilities. Construction support structures could still be observed northeast and south of this housing area on [redacted] photography. 25X1D

Structures in the Airfield Housing Area are described in Table 6 below.

COMMUNICATIONS FACILITIES

Communications facilities located in the airfield complex include both transmitting and receiving sites.

Transmitting Communications Site

The Transmitting Communications Site (Figure 43) is located approximately 2 nm northwest of the airfield control tower. This site contains one single end-pole day rhombic antenna, one single end-pole night rhombic antenna, six dipole antennas, eight and possibly a ninth

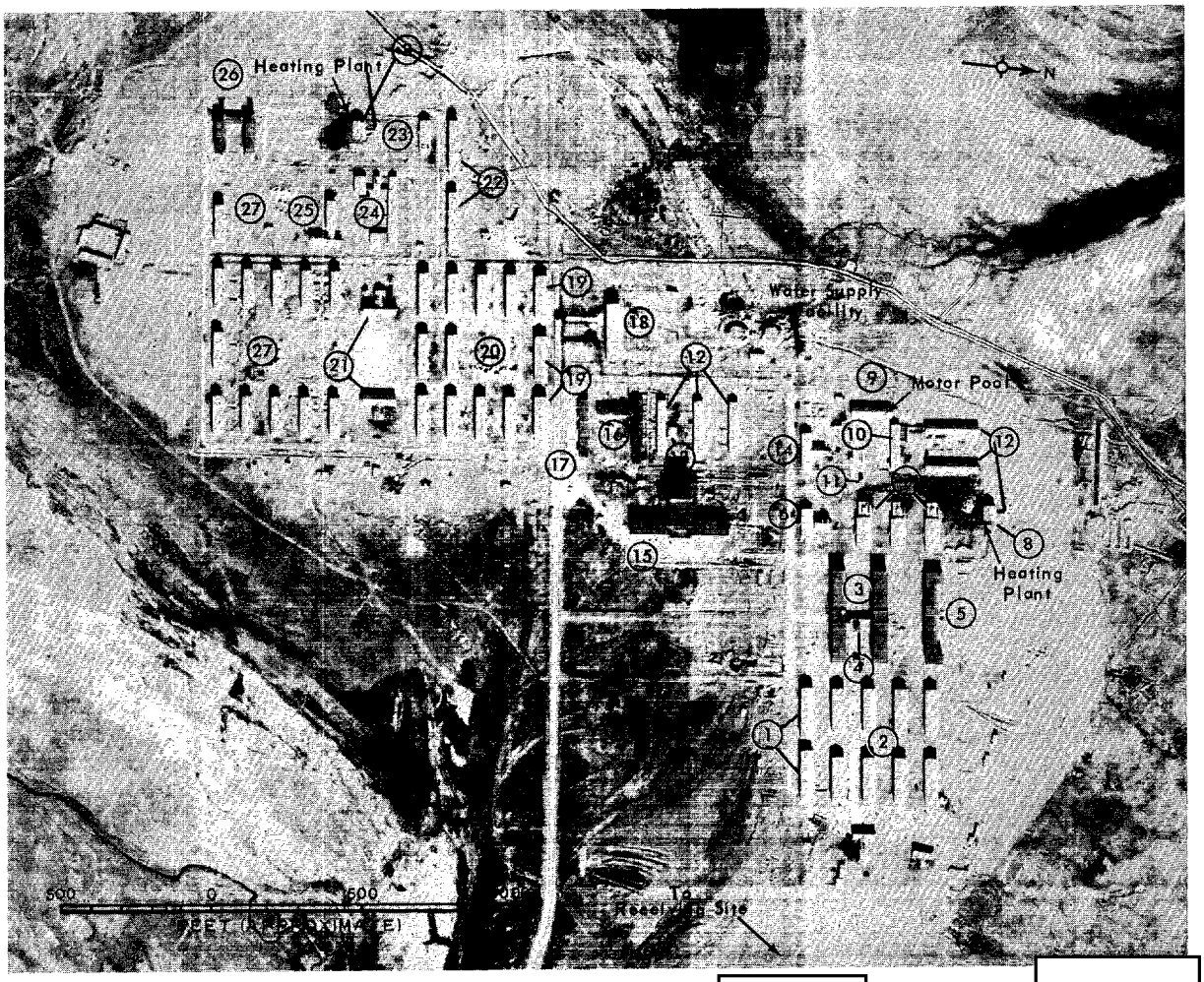


FIGURE 42. AIRFIELD HOUSING AREA

25X1
25X1D

Table 6. Description and Dimensions of Structures in Airfield Housing Area (Items are keyed to Figure 42)

Item No	Description	Dimensions (Feet)
1	2 barracks-type buildings	160 x 45 ea
2	8 barracks-type buildings	150 x 45 ea
3	2 poss quarters/school buildings, flat roof	300 x 45
4	Structure, flat roof	15 x 15
5	C-shaped administration building, 2-story, flat roof	230 x 40 (base) 60 x 35 (wings)
6	T-shaped messhall, one-story, gable roofed with 2 large vents	65 x 40 (stem) 55 x 40 (crossbar)
7	3 messhalls, each 1-story gable roof with 2 large vents with extensions	100 x 50 50 x 45
8	2 coal-fired gable roof heating plants, with shed, flat roof on south shed, flat roof on east and a stack on north side	50 x 40 40 x 20 40 x 15

Table 6. (Continued)

Item No	Description	Dimensions (Feet)
9	Vehicle shed, gable roof, 1 story	135 x 35
10	Vehicle shed, gable roof, 1 story	180 x 30
11	Probable dispatcher's shack, gable roof	20 x 15
12	5 storage buildings, gable roof, 1 story	180 x 30 ea
13	Building, gable roof	35 x 30
14	T-shaped housing support building	45 x 40 (stem) 110 x 40 (crossbar)
15	Modified T-shaped auditorium/admin building, flat-roof, 3 story crossbar, 4 & 5 story stem with two, 1-story extensions on either side of stem	330 x 50 120 x 75 135 x 25
16	Modified T-shaped building, flat roof, 1 story	220 x 35 (crossbar) 110 x 30 (stem)
17	Rectangular building, flat roof, 1 story with four extended entryways	195 x 35 15 x 5
18	Poss quarters building, gable roof, two story	185 x 45
19	3 quarters-type buildings each with four roof vents	145 x 45 ea
20	10 quarters-type buildings each with six roof vents	145 x 35 ea
21	2 T-shaped messhalls, each 1 story, gable roof with 2 large vents	110 x 40 (crossbar) 45 x 40 (stem)
22	2 quarters-type buildings each with 12 roof vents and four extended entryways	185 x 30 15 x 5
23	Messhall, 1 story, gable-roofed with 2 large vents	110 x 40
24	Probable hospital, gable roof, 1 story consists of main wing	230 x 30 60 x 30 (2 wings) 60 x 45 (1 wing) 45 x 35 (1 wing)
25	Modified T-shaped building, stepped-gable roof	105 x 35 (crossbar) 120 x 30 (stem)
26	U-shaped building, flat roof, base, one story two wings, three stories high	140 x 25 100 x 35 ea
27	12 quarters-type buildings each with 6 roof vents and two extended entryways	125 x 30 ea 15 x 5 ea

traveling wave Vee antennas, a T-shaped, gable-roofed transmitter building with a 60- by 35-foot crossbar and a 45- by 35-foot stem; a gable-roofed personnel building/heating plant measuring 70 by 30 feet with an adjacent stack; six small unidentified buildings, and a basketball court.

Receiving Communications Site

The Receiving Communications Site (Figure 44) is located just east of the Airfield Housing Area. This site contains four dipole and four traveling wave Vee antennas, a gable-roofed 70- by 35-foot receiver building with a small stack, and a small unidentified object.

Tables 7-11 present technical data on the antennas in the transmitting and receiving communications sites at the airfield.

AIRBORNE MISSILE FACILITIES

Two airborne missile facilities are located at either end of the Shuang-cheng-tzu Airfield. Air-to-surface missile (ASM) facilities are at the southwest end and probable air-to-air missile (AAM) facilities are at the northeast end. Both of these facilities are comparable to similar facilities at Vladimirovka Airfield at the KY/Vlad MTC. The ASM Area appeared more nearly complete than the Probable AAM Area in [redacted] scaffolding was still up on the large hangar-type building in the Probable AAM Area and the large hardstand in front of this building appeared to be either not completed or to be covered with debris on both [redacted] photography. 25X1D 25X1D 25X1D

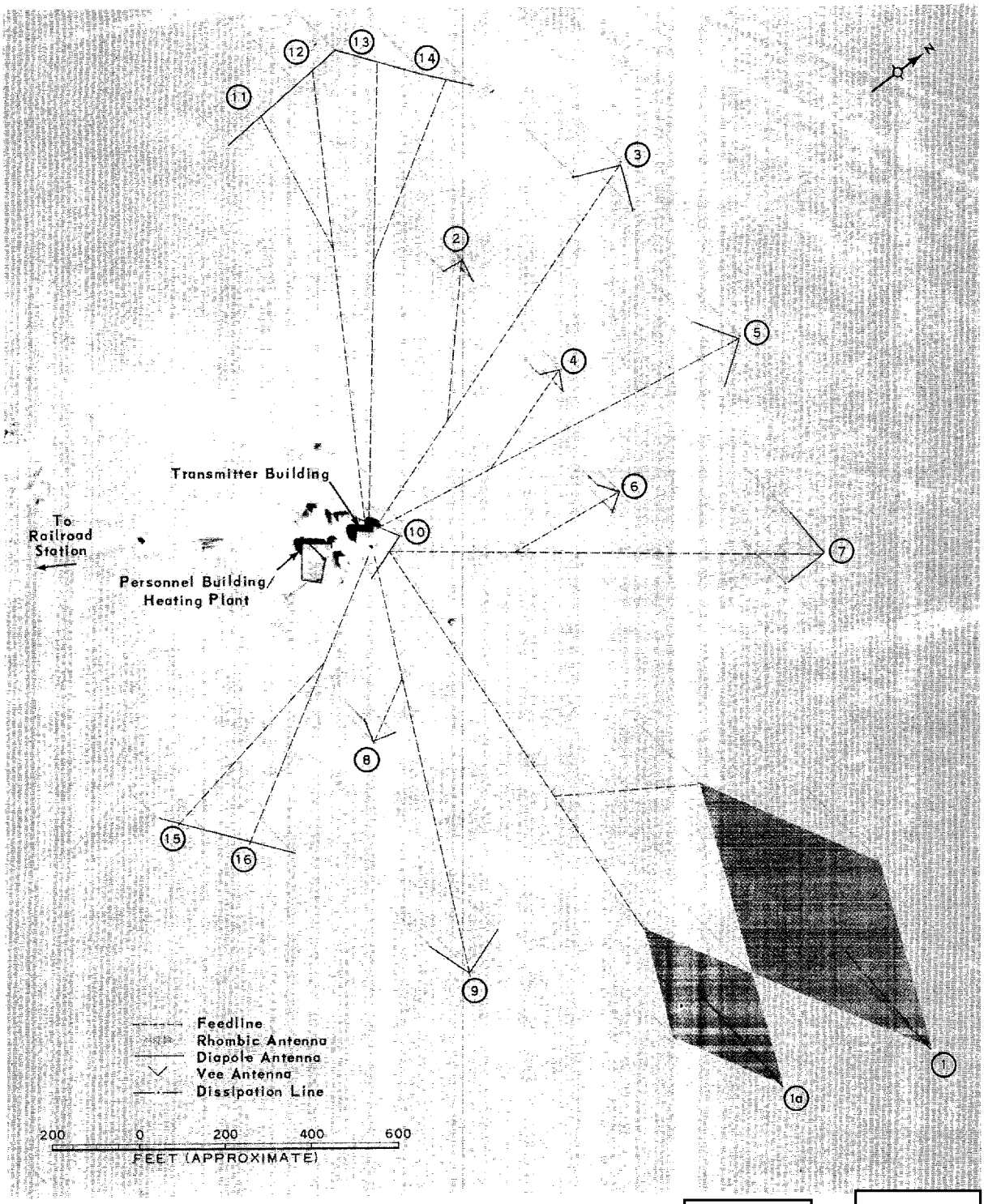


FIGURE 43. AIRFIELD TRANSMITTING COMMUNICATIONS SITE

25X1D

Table 7. Airfield Transmitting Communications Site Rhombic Antennas
(Antenna Numbers are keyed to Figure 43)

Antenna Number	Azimuth* (Degrees)	Major Axis (Feet)	Minor Axis (Feet)	End Pole HT (ft)	Side Pole HT (ft)	Tilt Angle (½ Side Angle)	Optimum Design Frequency (Megacycles)
1		830	395	90	90		8.3-9.3 mcs
1a		485	235	55	55		14-15 mcs

*The first azimuth listed is the primary transmitting azimuth for these antennas.

25X1D 25X1D

Table 8. Airfield Transmitting Communications Site Vee Antennas
(Antenna Numbers keyed to Figure 43)

Antenna Number	Azimuth (Degrees)	Length 1 Leg (Pole Separation) (ft)	Pole Height (ft)	Apex Angle (Degrees)	Optimum Design Frequency (Megacycles)
2		50	30	90°	18-20 mcs
3		115	60	90°	8- 9 mcs
4		50	30	90°	18-20 mcs
5		115	60	90°	8- 9 mcs
6		50	30	90°	18-20 mcs
7		115	60	90°	8- 9 mcs
8		50	30	90°	18-20 mcs
9		115	60	90°	8- 9 mcs
10		105	50	90°	8- 9 mcs

25X1D

Table 9. Airfield Transmitting Communications Site Dipole Antennas
(Antenna Numbers are keyed to Figure 43)

Antenna Number	Azimuth (Degrees)	Antenna Length (Pole Separation) (Feet)	Pole Height (Feet)	Design Frequency (Megacycles)
11		215	60	2-3 mcs
12		115	60	4-5 mcs
13		215	60	2-3 mcs
14		115	35	4-5 mcs
15		115	35	4-5 mcs
16		215	60	2-3 mcs

25X1D

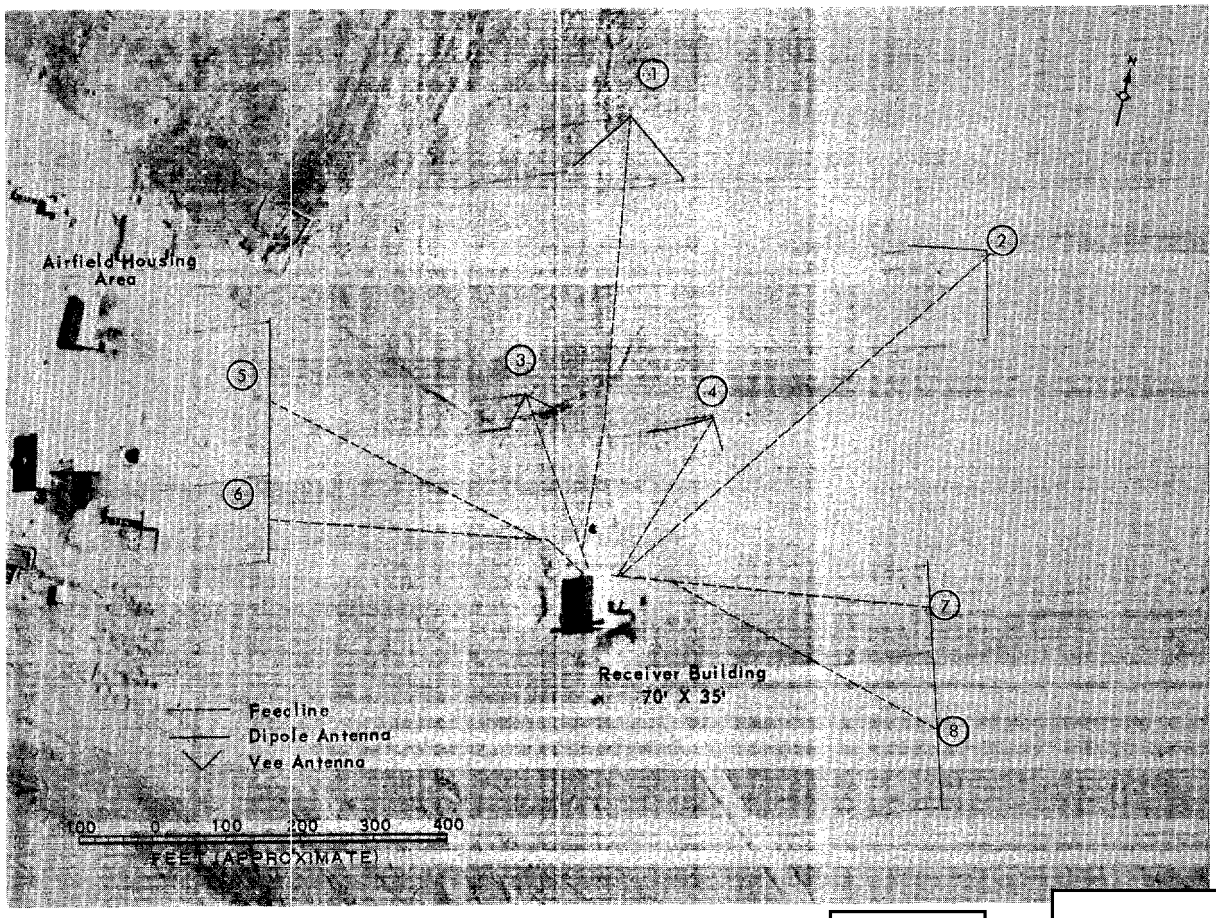


FIGURE 44. AIRFIELD RECEIVING COMMUNICATIONS SITE [redacted] [redacted] 25X1 25X1D

Table 10. Airfield Receiving Communications Site Vee Antennas
(Antenna Numbers are keyed to Figure 44)

Antenna Number	Azimuth (Degrees)	Length 1 Leg (Pole Separation) (ft)	Pole Height (ft)	Apex Angle (Degrees)	Design Frequency
1	180°-360°	120	60	90°	8.1- 8.5 mcs
2	45°-225°	120	60	90°	8.1- 8.5 mcs
3	[redacted]	55	30	90°	18.0-20.0 mcs
4		55	30	90°	18.0-20.0 mcs

25X1D

Table 11. Airfield Receiving Communications Site Dipole Antennas
(Antenna Numbers are keyed to Figure 44)

Antenna Number	Azimuth (Degrees)	Antenna Length (Pole Separation) (ft)	Pole Height (ft)	Design Frequency
5	[redacted]	215	60	2-3 mcs
6		120	40	4-5 mcs
7		120	40	4-5 mcs
8		215	60	2-3 mcs

25X1D

Air-to-Surface Missile Area

The ASM Area (Figure 45) has the closest resemblance to its counterpart area at Vladimirovka Airfield, KY/Vlad MTC. Included in this area is a rail-to-road offloading area and 17 buildings, of which all but five appear to be storage-type. The large hangar-type building (item 17) appears identical with one at the Airborne Missile Complex, Vladimirovka Airfield, and except for greater length, similar to the one at Dolon Airfield, USSR. 9/ The number and size of aircraft parking hardstands in the area is also similar to Vladimirovka Airfield, but there is no loading pit at SCTMTC as there is at both Vladimirovka and Dolon Airfields.

The area showed considerable cleanup work 25X1D completed between [redacted] and debris/construction materials were removed from the hardstand at the northeast end of the large building, item 17. Some open ditches for 25X1D pipelines were still in evidence on [redacted] coverage and probable personnel were observed working at a water ditch in the area.

The ASM Area is served by a rail siding to an offloading and storage area with a 100-foot long offloading ramp. Positioned on the hardstand in this offloading and storage area on 25X1D [redacted] coverage were 12 crates similar in appearance to MIG-21 aircraft except that they were considerably shorter. These crates have a total length of 30 feet whereas the MIG-21 25X1D crates have a total length of [redacted]. 10/ On 25X1D [redacted] photography seven of these crates had been moved and were positioned near item 16. Also present near the offloading area on the 25X1D [redacted] photographic coverages were six additional gable or round-roofed crates 25X1D measuring [redacted] in length and [redacted] in width. 25X1D A seventh crate of the same type was also on 25X1D the hardstand on [redacted] photography. Three more of each type or a total of six of these crates were also parked on the northwest side of the parking apron on both [redacted] 25X1D [redacted] photographic coverages. The whole area 25X1D is ringed with light poles and probable lightning arresters are adjacent to eight structures, (items 1, 2, 5, 6, 7, 8, 13 and 15 on Figure 45).

The railroad offloading and storage area contains four buildings (items 1-4) on the edge of the hardstand: two gable-roofed, 100- by 30-foot storage buildings each with 3 adjacent probable lightning arresters (items 1 and 2); and two flat-roofed, 80- by 20-foot storage buildings (items 3 and 4).

The remainder of the buildings in the ASM area are only road served: two flat-roofed, 25- by 10-foot storage buildings each with 1 adjacent probable lightning arrester (items 5 and 6); and two flat-roofed, 35- by 15-foot storage buildings each with 1 adjacent probable lightning arrester (items 7 and 8).

Several partially backfilled ditches lead to a gable-roofed, 45- by 30-foot steam/heating plant with 3 stacks on the roof and a 30- by 15-foot, flat-roofed extension (item 9). Item 10 is a gable-roofed, 40 by 30-foot storage building and items 11 and 12 are both flat-roofed storage buildings which measure 110 by 35 feet and 80 by 20 feet respectively. Items 13 and 15 are similar gable-roofed, 105 by 35-foot buildings that are road served at the end rather than at the side as is the case with items 1-12 and 14. They (items 13 and 15) both have 3 adjacent probable lightning arresters. Item 14 is a gable-roofed, 50 by 20-foot storage building just south of the junction of the road from the offloading and storage area and the main service road.

Items 16 and 17 are in the southern part of the ASM Area and are aligned with the same centerline. Item 16 is a 65 by 45-foot, drive-through building with two heights. The higher gable-roofed section is at the southwestern end and measures 45 by 45 feet. The lower, flat-roofed section at the northeast end measures

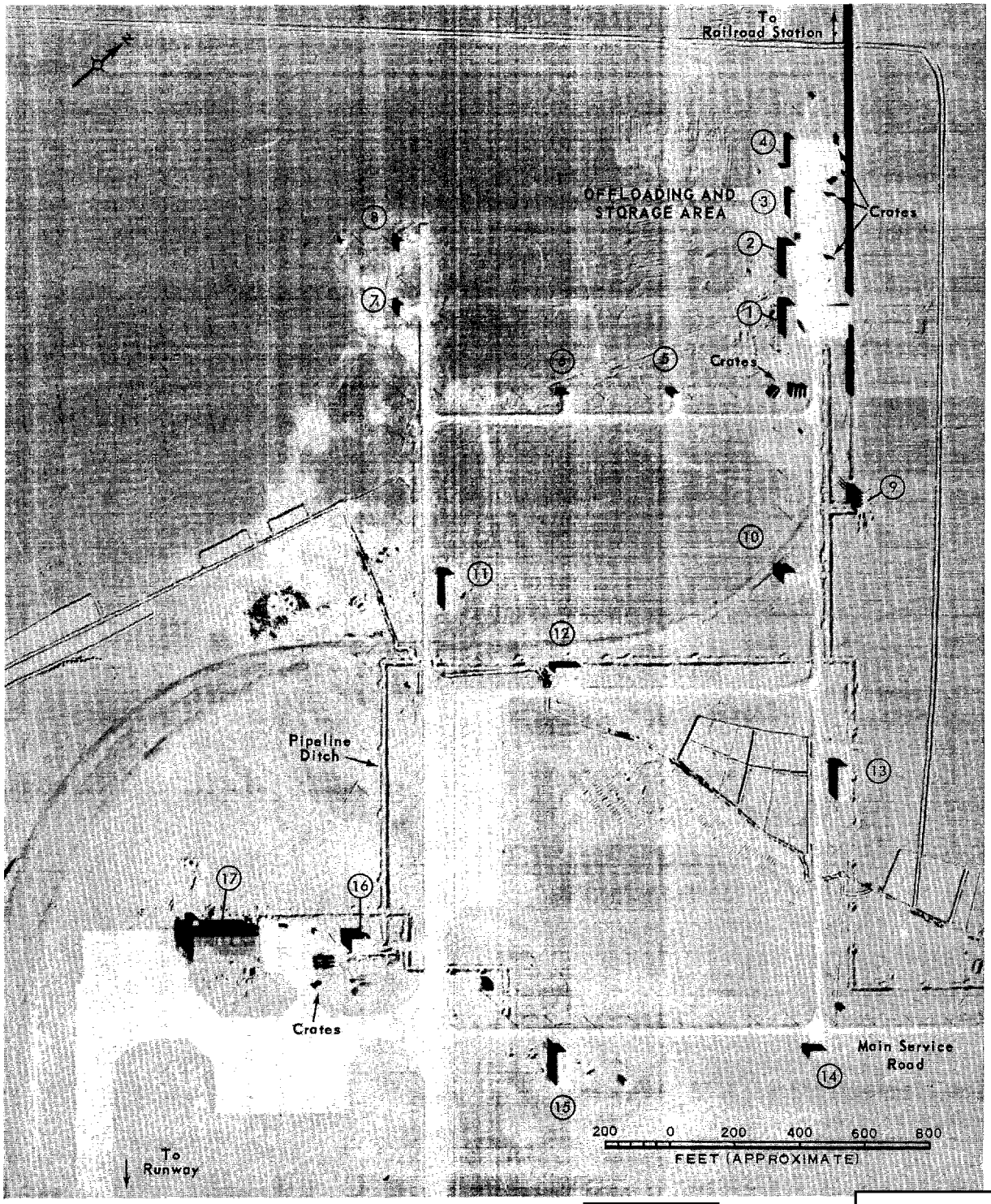


FIGURE 45. ASM AREA AT AIRFIELD [redacted] [redacted] 25X1

25X1D

45 by 20 feet. There is also a 45 by 10-foot, flat-roofed shop on the northwest side. The road into the northeast end was torn up on both 25X1D [redacted] photography by one of the 25X1D steam/water line ditches. Between [redacted] 25X1D [redacted] photography, seven crates, described previously, were positioned just south of this building, (item 16) and the hardstand at the northwest end of item 17 was cleared of construction debris. Item 17 is a high-bay drive-through, hangar-type building measuring 200 by 105 feet including two side shops measuring 200 by 20 feet and appears to be identical with one at Vladimirovka Airfield. At the northwest corner of this building is a 20 by 20-foot, flat-roofed structure. A similar, square, flat-roofed structure was observed adjacent to the comparable hangar-type building at Vladimirovka Airfield. The taxiway leading from the hardstand at the southwest end of Item 17 to the runway is 110 feet wide and is the widest taxiway at Shuang-cheng-tzu Airfield. The comparable taxiway at Vladimirovka Airfield is also the widest at the field and is approximately 80 feet wide.

Probable Air-to-Air Missile Area

The Probable AAM Area (Figure 46) appeared to be in an earlier stage of construction in [redacted] than the ASM Area as scaffolding was still up on the large hangar-type building (item 14), building debris/construction materials were still scattered on the hardstand in front of this building, and the service road between the hardstand and this building did not appear finished. No apparent change in construction could be noted in this area of the airfield between [redacted] 25X1D

Included in this area is a small motor pool, several unidentified buildings and two excavations for buildings or water basins. The taxiway from this area to the runway is 50 feet wide as compared to a 40-foot taxiway at the Vladimirovka Airfield.

The structures in the Probable AAM Area are keyed to Figure 46. There are 16 structures in the area and all except items 13-16 are north-

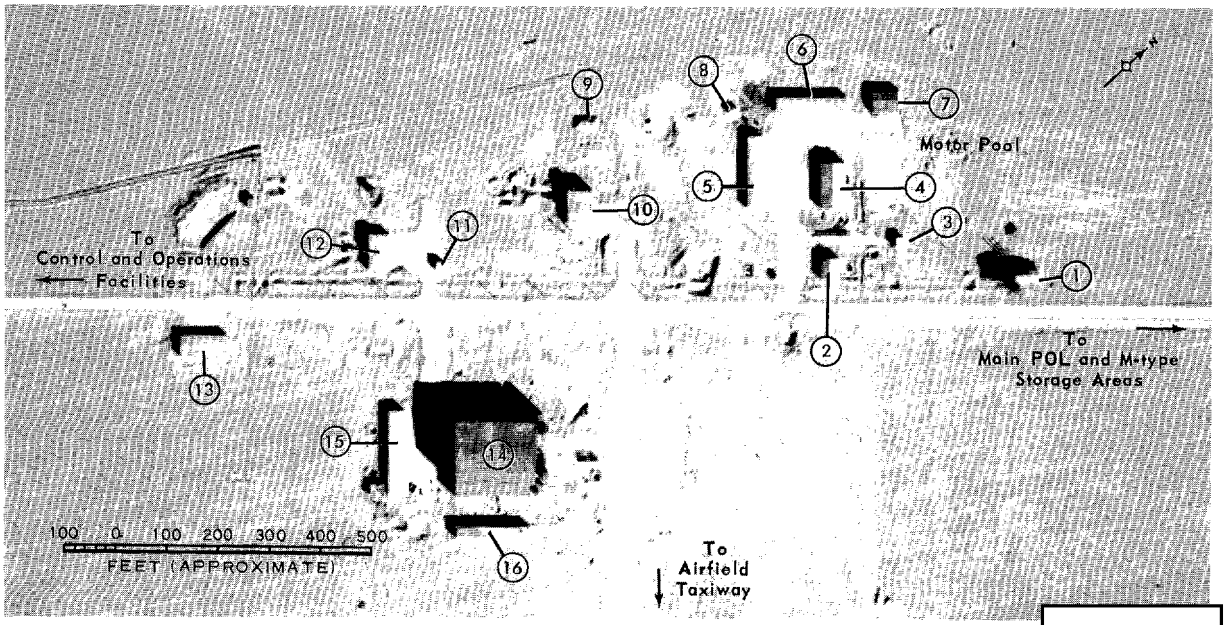


FIGURE 46. PROBABLE AAM AREA AT AIRFIELD [redacted] 25X1

25X1D

west of the main service road. A 65- by 20-foot steam/heating plant (item 1) has three stacks on the gable roof. Seven structures (items 2-8) are in a small motor pool in the northern portion of the Probable AAM Area and consist of a gable-roofed, 40 by 35-foot unidentified type of building (item 2); a flat-roofed, 20 by 20-foot storage shed (item 3); a gable-roofed, 90 by 50-foot probable vehicle maintenance building (item 4) with an adjacent grease rack; two flat-roofed, 65 by 30-foot vehicle storage sheds (items 5 and 6); a gable-roofed, 50 by 45-foot storage building (item 7); and a 15 by 10-foot, flat-roofed structure, (item 8).

Southwest of the motor pool and northwest of the main service road there are four structures: an earth-mounded bunker (item 9) with two vents on the 30- by 10-foot top; a gable-roofed, two-story, 50- by 45-foot building (item 10) with a 50 by 20-foot, flat-roofed extension on the southeast end; a 15 by 10-foot, two-story structure (item 11); and a stepped-gable-roofed,
25X1D
25X1D storage building (item 12) with a 30 by 20-foot higher roof section on the west corner.

Four structures (items 13-16) are all located southeast of the main service road and have the following configurations and measurements: a gable-roofed, 90 by 45-foot storage building (item 13); a drive-through, hangar-type building (item 14) measures 160 by 155 feet including two side shops each measuring 160 by 15 feet. This building has a similar configuration to a hangar-type building in the AAM Area of the Airborne Missile Complex at Vladimirovka Airfield, but is larger than the one at Vladimirovka which measures approximately 135 by 120 feet. Item 15 is a flat-roofed, 165 by 35-foot shed which may be compared to a similar but smaller, 135 by 25 feet, structure behind the hangar-type building at Vladimirovka Airfield. Item 16 is a flat-roofed, 145 by 20-foot shed located just southeast of the large hangar-type building (item 14).

EARLY WARNING RADAR SITE NO 2

Early Warning Radar Site No 2 (Figure 47) is located approximately 3.5 nm southeast of

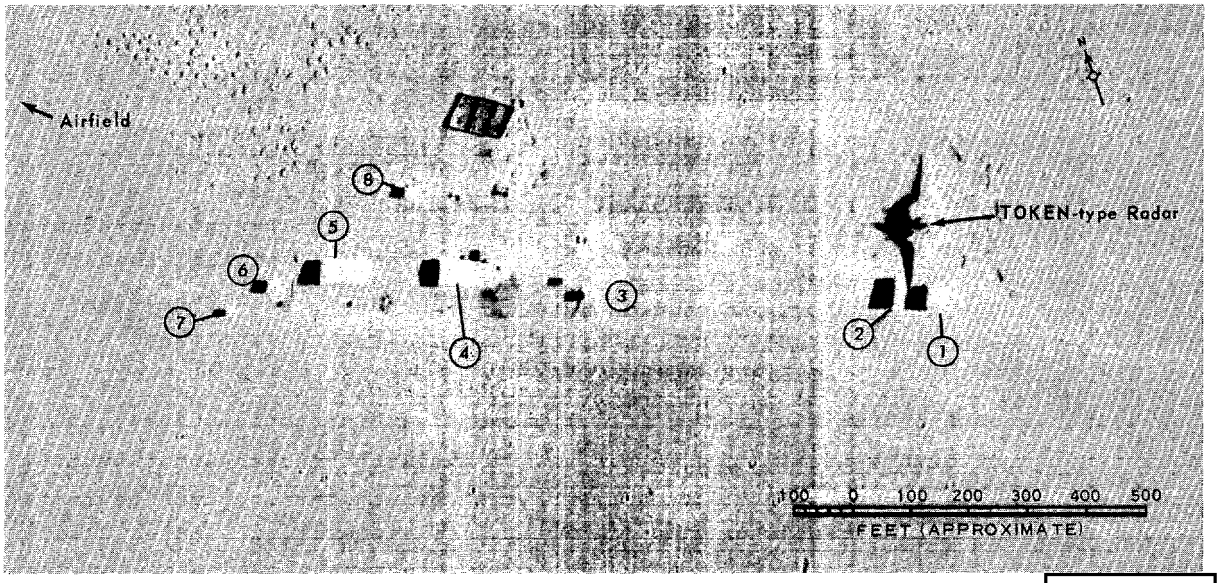


FIGURE 47. EARLY WARNING RADAR SITE NO 2 AT AIRFIELD
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Shuang-cheng-tzu Airfield and is connected to the airfield by overhead electric power/communication lines. The area contains six permanent structures along a rolled and graded natural surfaced road and a TOKEN-type radar on a mound. No security fencing was observed at this site.

The description of the structures and objects in the Early Warning Radar Site No 2 follow (the item numbers are keyed to Figure 47).

On either side of the southwest ramp to the radar mound there are two flat-roofed storage structures (items 1 and 2) which measure 45 by 35 feet and 45 by 15 feet respectively. Approximately 500 feet west-northwest of item 2, along a graded and rolled natural surfaced road there is another flat-roofed storage structure (item 3) which measures 15 by 15 feet.

The only personnel building in the site is a single story 100 by 45 foot gable-roofed building (item 4). An 85- by 35-foot flat-roofed probable vehicle storage structure (item 5) has a 140 by 90 foot parking apron with two basketball backboards emplaced on it. There are three unidentified items: a 20 by 20 foot flat-roofed structure (item 6) and two unidentified objects (items 7 and 8) each of which measures approximately 10 by 10 feet.

L INSTRUMENTATION PATTERN

The L pattern formed by three instrumentation sites at SCTMTC (Figure 48) is located in the desert northeast of the airfield (Figure 1). The three sites form a right angle pattern with the apex site located at 40-36N 100-25E, approximately 31 nm northeast of the airfield. The apex site is served by overhead power/communication lines from the airfield and is connected to the airfield by an unimproved road. The end sites are each approximately 12.5 nm from the apex site and are connected to it by unimproved roads and ground scars which are probably buried conduits for communications and instrumentation cabling. This facility is almost an exact duplicate of the forward L Instrumentation Pattern at KY/Vlad MTC (Table 12). 11/

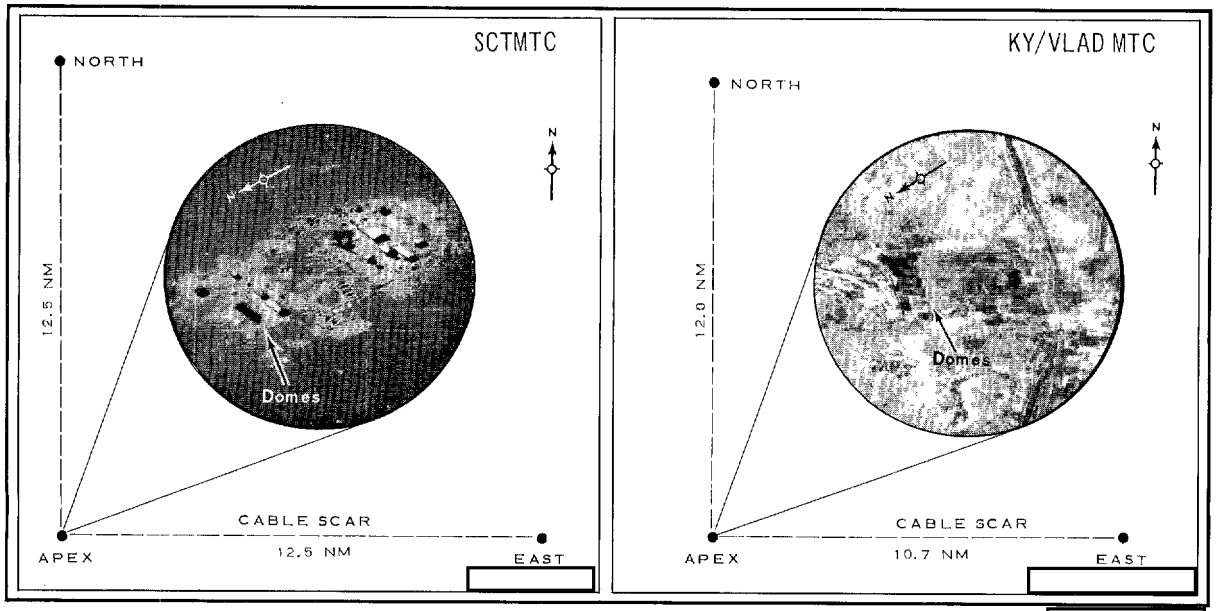

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FIGURE 48. COMPARISON OF L INSTRUMENTATION PATTERN, SHUANG-CHENG-TZU AIRFIELD AND KY/VLAD MTC

Table 12. Comparison of the L Instrumentation Pattern at SCTMTC and the Forward L Pattern at the KY./Vlad MTC

Description	KY/Vlad MTC	SCTMTC
No of sites	3	3
No of 20' domes at Apex site	3	3
No of 20' domes at north site	3	2
No of 20' domes at east site	2	2
Orientation of domes at Apex site	North	North
Distance between apex & north sites	12.0 nm	approx 12.5 nm
Distance between apex & east sites	10.7 nm	approx 12.5 nm
Azimuth to north site from apex site	[redacted]	approx 0°*
Azimuth to eastern site from apex site		approx 90°*

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All three instrumentation sites at SCTMTC contain standard range instrumentation 20-foot diameter domes. These domes are positioned at one end of a 40- by 20-foot gable-roofed building with the top of the dome being approximately 30 feet off the ground. No apparent change in facilities in the L pattern at SCTMTC could be determined between photographic coverages of [redacted] but photographic coverage of [redacted] revealed a new ground target marker approximately 9 nm northeast of the apex site, on a line bisecting the right angle formed by the L and just inside an imaginary line connecting the end sites. Although no exact function can be ascribed to this L facility, it is felt that it is primarily associated with activities at the airfield, probably with the airborne missile systems.

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REFERENCES

PHOTOGRAPHY

[redacted]

25X1D

NPIC/R-1065/64

REFERENCES (Continued)

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25X1C

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SAC. US Air Target Chart, Series 200, Sheet 0287-16HL, 1st ed, May 62, scale 1:200,000 (SECRET)

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REQUIREMENTS

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NPIC PROJECT

JN-22/62

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